2024 Annual
Conference & Exposition

The Future of Engineering Education

Conference PROGRAM

ASEE
AMERICAN SOCIETY FOR ENGINEERING EDUCATION

COLLEGE OF ENGINEERING

GROWING the SILICON FOREST

The U.S. semiconductor industry employs nearly 2 million people. 15% of these jobs are in Oregon, and semiconductors account for almost half of the state's exports. Oregon State University is committed to developing new technology to move the field forward and providing the growing workforce needed to support it.

It's a commitment drawing national attention.

TECH HUBS
U.S. Economic Development Administration

Federal Tech Hub Designee

NSF

Regional Innovation Engine Awardee

BEST COLLEGES U.S.News RANKINGS

#4 Best Online Bachelor's Programs

What's next? Find out at beav.es/semi

Oregon State University

PRESIDENT'S WELCOME

Welcome to the 2024 ASEE Annual Conference!

We are so excited to welcome each of you to the ASEE Annual Conference in Portland, Oregon. We're anticipating a great program of papers, posters, and special sessions this year, with strong attendance from across the nation and the world. We have also substantially expanded our exhibit hall this year, knowing that it is a major attraction for attendees. We are very grateful to the ASEE Conferences and IT staff for their hard work to make this year's conference another success.

The Annual Conference is the single largest gathering of the year for ASEE members. For many who attend the conference, it is their best opportunity to share their individual and collective work in engineering education. Chances to learn abound, whether as part of a formal session or while meeting friends in the hallway. We continue to recognize what a privilege it is to be able to meet face-to-face to establish, build, and maintain those relationships.

I want to encourage you to take full advantage of this year's conference. Try out a session from a division that you haven't encountered before, or engage with one of our other groups, including councils, zones, sections, and committees. Be sure to attend the plenary sessions, and perhaps go to one of the many panels being offered this year on a wide variety of topics. Consider coming to Portland a bit early so that you can participate in one of the workshops or the student poster session on Sunday. Become actively engaged in a division with like-minded colleagues by attending a business meeting. Maybe this is your year to be nominated for a leadership position! And, of course, don't miss the 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.

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 HQ leadership and our member volunteers for their extraordinary dedication and service. As we complete the celebration of our 130th Society year, I am confident that ASEE is well poised to lead engineering education over the next 130 years. Thank you for being a part of making that happen!

Best,

Doug Tougaw
ASEE President 2023 – 2024

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2024 ASEE ANNUAL CONFERENCE AND EXPOSITION PROGRAM

ASEE: Meet Your McGraw Hill Team at Booth #506

- One-on-One Consultations
- Live Demonstrations
- Exciting Giveaways

Tuesday, June 25, 2024
9:15 AM – 10:45 AM | Room B110

Leveraging Generative AI for Engineering Course Development: Save Yourself Time and Improve Student Learning

Refreshments will be served.
Space is limited.
Scan to RSVP today!

Learn how faculty can harness generative AI tools like ChatGPT, MidJourney, Gamma, custom-built GPTs, and others to streamline course development and elevate educational outcomes. Discover practical applications of AI for creating high-quality presentations, comprehensive lecture notes, targeted learning objectives, and robust assessments.

This presentation will include both demonstrations and critical discussion on the ethical use of AI in education, its environmental implications, and the challenge of academic integrity in the digital age. Attendees will leave equipped to enhance teaching efficiency and enrich student learning experiences by effectively integrating AI into their educational practices.

Wednesday, June 26, 2024
8:00 AM – 9:30 AM | Room B110

Calling all educators! Do you dream of educational products that perfectly fit your teaching style and student needs?

Want to make learning an active, engaging, and meaningful experience for students? In this workshop, you can help shape the future of learning tools by providing feedback on what YOU want to see.

Refreshments will be served.
Space is limited.
Scan to RSVP today!

What to Expect:

- **Future-Focused Brainstorming:** Help us envision the ideal educational product. What features would revolutionize your classroom? Weigh in on multimedia elements, interactives, and updates you want to help keep students engaged and actively learning.
- **Collaborative Problem-Solving:** Work with fellow educators to identify solutions and develop strategies for impactful learning experiences.

Benefits for You:

- **Direct Impact:** Your feedback will directly influence the development of future educational products.
- **Networking Opportunities:** Connect with fellow educators, share best practices, and build a community passionate about improving learning.

Mc Graw Hill Access Engineering

The award-winning engineering reference platform for academics, students, and professionals.

Accessengineeringlibrary.com

Mc Graw Hill connect®

Find out how to improve student results with adaptive-learning tools

mheducation.com/highered/engineering-computer-science

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 in person.

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Professor, Department of Engineering Education
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North Carolina Agricultural and Technical State University

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Northeastern University

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Charles McIntyre
Retired

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Finance Committee Expert
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American Society for Engineering Education

Texas A&M Space Institute

Leading the field of space exploration with the world's largest indoor moonscapes and Marscapes for testing, training and workforce development.

$150M
FUNDING OVERALL
(General Appropriations Act, FY24-25)

$150M to the Texas Space Commission for Research Fund awards per recommendations by the Consortium

$200M
Appropriated to Texas A&M University for construction of a new facility adjacent to the Johnson Space Center
(FY24-25)

MORE INFO:
space.tamu.edu

TEXAS A&M UNIVERSITY

Semiconductor & Microelectronics Education & Training

Partnering with the Texas A&M Semiconductor Institute to launch multiple programs and initiatives to bolster the semiconductor industry.

MORE INFO:
chips.tamus.edu

A new Master of Science, focusing on microelectronics and semiconductors, will launch Fall 2025. The development of this program is made possible by a $1 million gift from Samsung Austin Semiconductor.

Beginning in Fall 2024, four certificates will be offered to address the state and national need for trained experts in the field of semiconductors and microelectronics.

TEXAS A&M UNIVERSITY
Engineering

PROGRAM CHAIRS

ASEE would like to acknowledge and thank the 2024 ASEE Program Chairs for their tireless efforts and dedication to our organization.

ASEE Field Unit	Name	Organization
Aerospace Engineering Division	Brian Ritchie	The Ohio State University
	Mary Johnson	Purdue University at West Lafayette (PPI)
Architectural Engineering Division	Eugene Kwak	State University of New York, College of Technology at Farmingdale
Biological and Agricultural Engineering Division	Tim Foutz	University of Georgia
Biomedical Engineering Division	Alexis Ortiz-Rosario	The Ohio State University
	Rachel Childers	The Ohio State University
Board of Directors	Patti Greenawalt	American Society for Engineering Education
Chemical Engineering Division	Chris Barr	University of Michigan
	Sarah Wilson	University of Kentucky
Civil Engineering Division	David Saftner	University of Minnesota Duluth
	Mary Watson	The Citadel
Commission on Diversity, Equity, and Inclusion	Brianna McIntyre	National Action Council for Minorities in Engineering, Inc.
	Meagan Pollock	Engineer Inclusion
Commission on P-12 Engineering Education	Katey Shirey	eduKatey LLC
Community Engagement Division	Shoshanah Cohen	Stanford University
Computers in Education Division	Mahnas Mohammadi-Aragh	Mississippi State University
	Mike Borowczak	University of Central Florida
Computing & Information Technology Division	Afsaneh Minaie	Utah Valley University
Construction Engineering Division	Kimberly Talley	Texas State University
Data Science and Analytics Constituent Committee	Bala Maheswaran	Northeastern University
	Ilya Grinberg	SUNY Buffalo State University

PROGRAM CHAIRS

ASEE Field Unit	Name	Organization
Design in Engineering Education Division	Elisabeth Kames	Florida Polytechnic University
	Samuel Dickerson	University of Pittsburgh
Electrical and Computer Engineering Division	George Nasr	Lebanese American University
	Kumar Yelamarthi	Tennessee Technological University
Energy Conversion, Conservation, and Nuclear Engineering Division	Ira Harkness	University of Florida
Engineering Communicators Constituent Committee	Nathan Kahl	George Mason University
	Teresa Walker	Purdue University at West Lafayette (COE)
Engineering Design Graphics Division	Erik Schettig	North Carolina State University at Raleigh
Engineering Economy Division	Billy Gray	Tarleton State University
Engineering Ethics Division	Rockwell Clancy	Virginia Polytechnic Institute and State University
Engineering Leadership Development Division	Kenneth Lamb	California State Polytechnic University, Pomona
	Meg Handley	Pennsylvania State University
Engineering Libraries Division	Chelsea Leachman	Washington State University
Engineering Management Division	Ekaterina Koromyslova	South Dakota State University
	Gül Kremer	University of Dayton
Engineering Physics and Physics Division	Carl Frederickson	The University of Central Arkansas
Engineering Technology Division	Ivan Mosley	Tennessee State University
	Mohammad Uddin	East Tennessee State University
Entrepreneurship & Engineering Innovation Division	Ginger Scarbrough	New Mexico State University
Environmental Engineering Division	Andrew Pfluger	United States Military Academy
Equity, Culture & Social Justice in Education Division	Marissa Tsugawa	Utah State University - Engineering Education
	Robin Fowler	University of Michigan
Experimentation and Laboratory-Oriented Studies Division	Dominik May	University of Georgia

PROGRAM CHAIRS

ASEE Field Unit	Name	Organization
Faculty Development Division	Kathryn Dimiduk	Cornell University
	Michelle Soledad	Virginia Polytechnic Institute and State University
First-Year Programs Division	Joshua Hertz	Northeastern University
Graduate Studies Division	Tilman Wolf	University of Massachusetts Amherst
Industrial Engineering Division	Thomas Omwando	Simpson University
Instrumentation Division	Herbert Hess	University of Idaho
International Division	Gloria Kim	University of Florida
Liberal Education/Engineering & Society Division	Marie Stettler Kleine	Colorado School of Mines
Manufacturing Division	Md Fashiar Rahman	University of Texas at El Paso
Materials Division	Joel Galos	California Polytechnic State University, San Luis Obispo
Mathematics Division	James Lewis	University of Louisville
Mechanical Engineering Division	Siamak Farhad	The University of Akron
Mechanics Division	Chris Venters	East Carolina University
Military and Veterans Division	Jerry Dahlberg	University of Tennessee, Space Institute
Minorities in Engineering Division	Gholam Shaykhian	Florida Institute of Technology
Multidisciplinary Engineering Division	Duncan Davis	Northeastern University
New Engineering Educators Division	Ahmed Dallal	University of Pittsburgh
	James Giancaspro	University of Miami
Ocean and Marine Division	Maija Benitz	Roger Williams University
Pre-College Engineering Education Division	Ibrahim H. Yeter	Nanyang Technological University
	Jennifer Keshwani	University of Nebraska - Lincoln
Software Engineering Division	Mudasser Wyne	National University

PROGRAM CHAIRS

ASEE Field Unit	Name	Organization
Student Division	Daniel Adeniranye	Florida International University
	Kerrie Hooper	Florida International University
	Nivedita Kumar	Florida International University
Systems Engineering Division	Rafic Bachnak	Pennsylvania State University, Harrisburg, The Capital College
Technological and Engineering Literacy/Philosophy of Engineering Division	Stephen Frezza	Franciscan University of Steubenville
	Suzanne Keilson	Loyola University Maryland
Women in Engineering Division	Brian Kirkmeyer	Miami University

CONFERENCE-AT-A-GLANCE

PACIFIC DAYLIGHT TIME

7:00 A.M.

8:00 A.M.

9:00 A.M.

10:00 A.M.

11:00 A.M.

12:00 P.M.

1:00 P.M.

2:00 P.M.

3:00 P.M.

4:00 P.M.

5:00 P.M.

6:00 P.M.

SATURDAY, JUNE 22

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

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

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

ASEE Long-Range Planning Committee Meeting
1:05 P.M. – 4:00 P.M.

SUNDAY, JUNE 23

Registration Open - 8:00 A.M. – 5:30 P.M.

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

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

BACK BY POPULAR DEMAND!
Annual Conference Career Fair
10:00 A.M. – 12:00 P.M.

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

Division Mixer
3:30 P.M. – 5:00 P.M.

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

Division Social Events

CONFERENCE-AT-A-GLANCE

MONDAY, JUNE 24

- Registration Open - 7:00 A.M. – 5:00 P.M.
- Poster Viewing & Exhibit Hall Open 9:00 A.M. – 6:00 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 pm–3:00 pm
- 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 25

- Registration Open - 8:00 A.M. – 5:00 P.M.
- Poster Viewing & Exhibit Hall Open 12:30 P.M. – 6:00 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

WEDNESDAY, JUNE 26

- Registration Open - 8:00 A.M. – 4:00 P.M.
- Poster Viewing & Exhibit Hall Open 9:00 A.M. – 12:00 P.M.
- Technical Sessions & Business Meetings 8:00 A.M. – 9:30 A.M.
- Focus on Exhibits Networking Break & NSF Grantees Poster Sessions 9:45 A.M. – 11:15 A.M.
- Technical Sessions & Business Meetings 11:30 A.M. – 1:00 P.M.
- ASEE Awards Lunch 11:30 A.M. – 1:00 P.M.
- FREE TIME 1:00 P.M. – 2:00 P.M.
- Technical Sessions & Business Meetings 2:00 P.M. – 3:30 P.M.
- 2024-2025 ASEE Board of Directors Meeting 1:30 P.M. – 3:30 P.M.
- Technical Sessions & Business Meetings 3:45 P.M. – 5:15 P.M.
- Program Chair Appreciation Celebration 5:30 P.M. – 6:30 P.M.
- President's Farewell Reception 6:30 P.M. – 8:00 P.M.

FLOOR PLAN

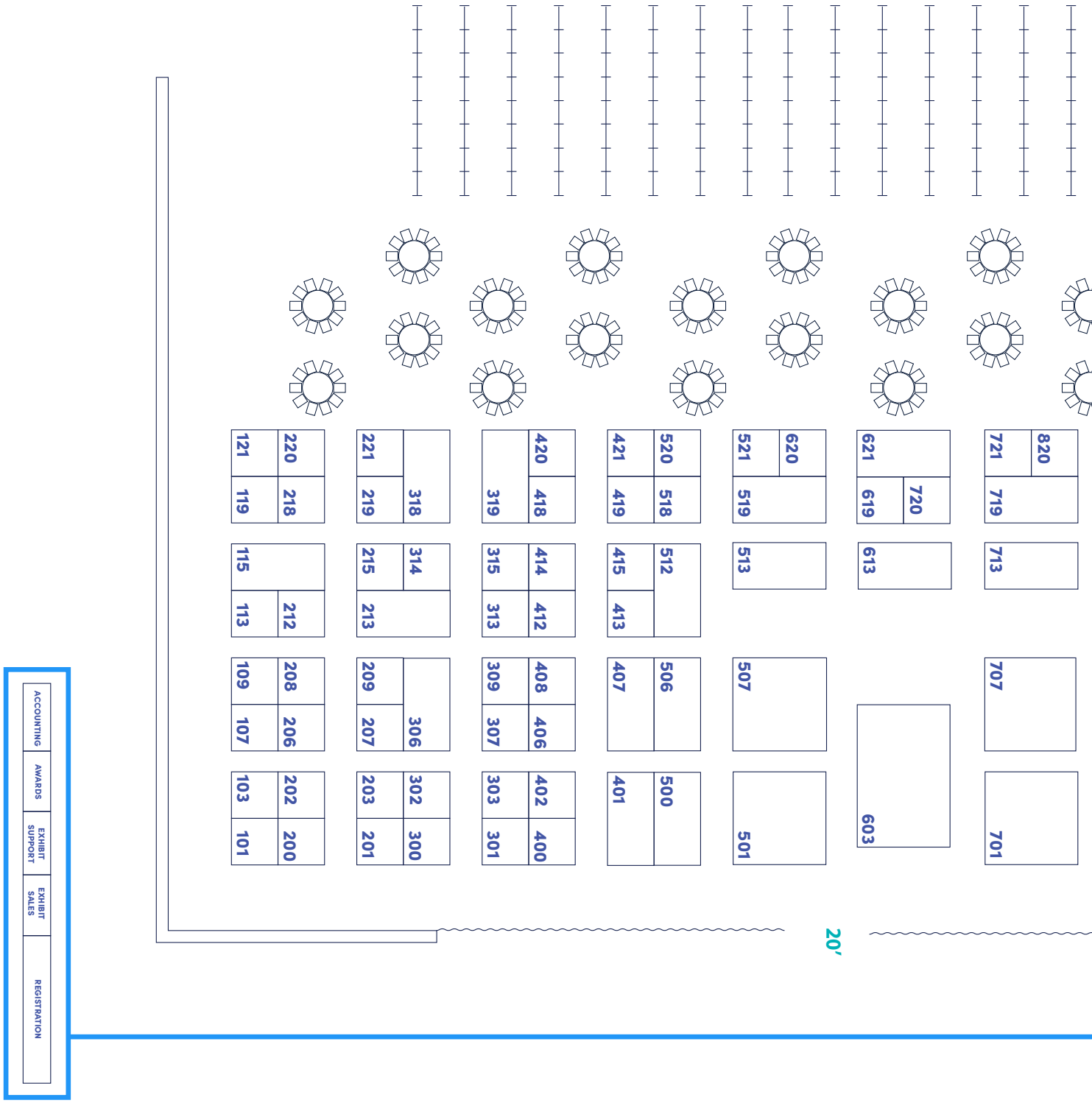
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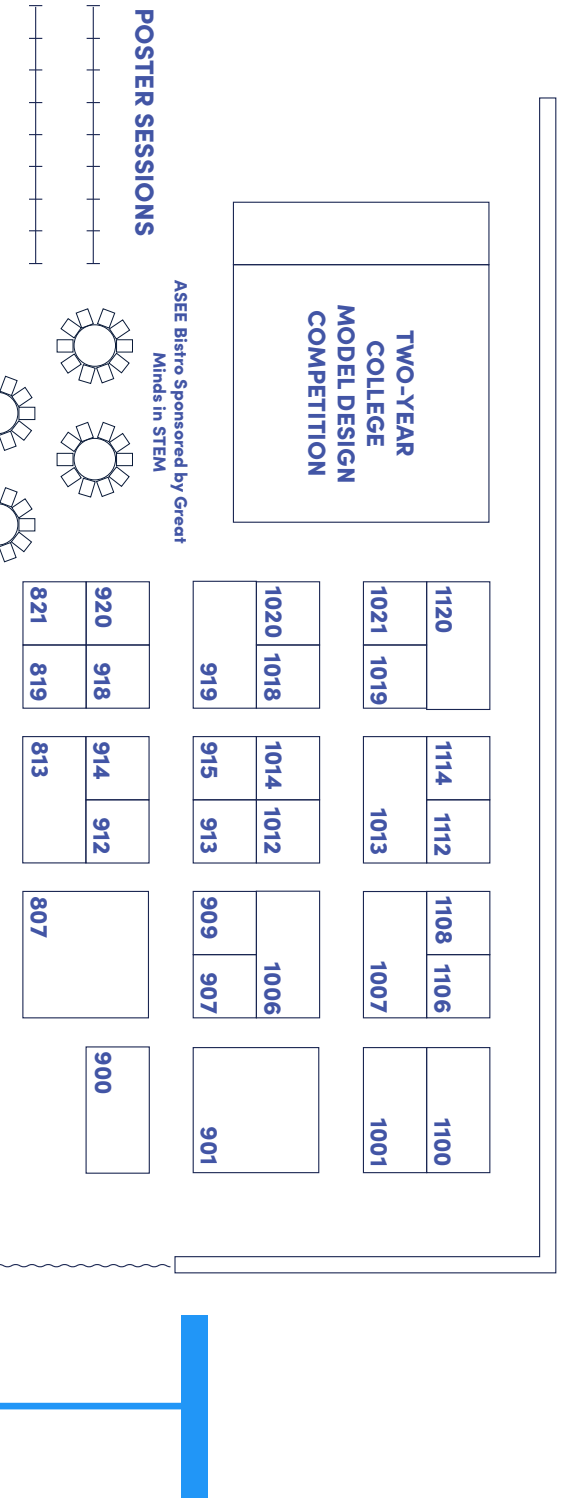
EXHIBIT SALES
REGISTRATION

FLOOR PLAN



BOOK YOUR EXHIBIT HALL BOOTH OR SPONSORSHIP FOR THE 2025 ASEE ANNUAL CONFERENCE IN MONTREAL!

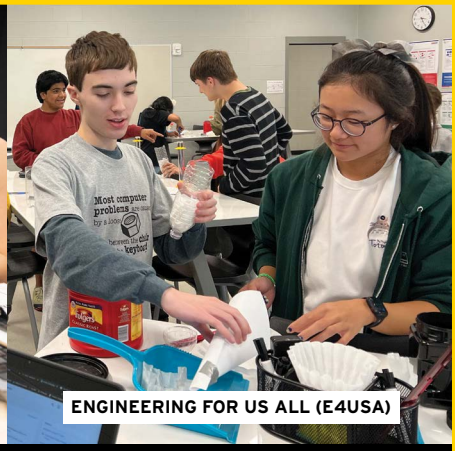
PLEASE VISIT THE EXHIBIT SALES OFFICE NEAR REGISTRATION OR

Contact Ashley Krawiec, ASEE's Director of Event Sales, at a.krawiec@asee.org for more information.

ASEE

BALLOON PAYLOAD PROGRAM

FIRST-YEAR STUDENT MACHINE LEARNING DESIGN PROJECTS



ENGINEERING FOR US ALL (E4USA)

Expanding hands-on and experiential learning through Vertically Integrated Projects

Leading in artificial intelligence training with a campuswide multidisciplinary institute and AI4All initiative

Democratizing and demystifying engineering through participation in e4usa

When the world needs leadership in training the next generation of great engineers, **it goes to Maryland Engineering.**

UNIVERSITY OF MARYLAND
A. JAMES CLARK SCHOOL OF ENGINEERING

VISIT BOOTH #701

SCAN TO LEARN MORE

CONFERENCE HIGHLIGHTS

SUNDAY, JUNE 23

Sunrise Yoga

7:00 AM – 7:45 AM
Oregon Ballroom Foyer/Plaza
Oregon Convention Center

ASEE Registration Open

8:00 A.M. – 5:30 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

BACK BY POPULAR DEMAND! ASEE Annual Conference Career and Graduate Fair

10:00 A.M. – 12:00 P.M.
Oregon Ballroom Foyer/Plaza
Oregon Convention Center

The ASEE Career and Graduate Fair continues at the 2024 Annual Conference. This event will bring universities, companies, and organizations to recruit students, faculty, and others and allow participants opportunities to enhance their careers or further their education.

The fair will offer three different options for attendees:

1. Education opportunities at academic institutions for students from high school to postdocs
2. Job opportunities at academic institutions for professors, lecturers, etc.
3. Private sector jobs for students and graduates.

The fair will take place outside of the Oregon Ballroom at the Portland Convention Center. 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 Career and Graduate Fair.

Click here to see what specific positions they are looking for:

https://aseecmsprod.azureedge.net/aseecmsprod/asee/media/content/annual%20conference/2024/pdfs/2024-asee-career-and-graduate-fair-participants.pdf

Current list of recruiters:

- Auburn University
- Clarkson University
- eFellows Engineering Postdoctoral Fellowship
- Hanover College
- Hofstra University
- Illinois State University
- Iowa State University
- LMU Science and Engineering Graduate Programs
- MathWorks
- NCEES
- North Carolina State University
- Northwestern University Master of Science in Law Program
- Siemens Digital Industries Software
- Texas A&M University
- The Ohio State University
- The University of Kansas - Madison and Lila Self Graduate Fellowship
- The University of North Carolina at Charlotte
- Tufts University Graduate School of Arts and Sciences
- U.S. Coast Guard Academy
- University of Illinois - The Grainger College of Engineering
- University of Michigan, Biomedical Engineering
- Virginia Tech, College of Engineering

CONFERENCE HIGHLIGHTS

ASEE DIVISION MIXER

3:30 P.M. – 5:00 P.M.
Oregon Ballroom 201-204
Oregon Convention Center

Join your friends and colleagues at our member engagement event—the Division Mixer.

Division Mixer Participants:

1. **ASEE Member Services & Campus Reps**
   Tim Manicom
2. **ASEE Learning, Sponsored Programs, and Strategic Planning**
   Sarah Deleeuw & Alex Sharpe
3. **Aerospace Division (AERO)**
   Mary E. Johnson
4. **Architectural Engineering Division (ARCHE)**
   Eugene Kwak
5. **Biological and Agricultural Engineering Division (BAE)**
   Tim Foutz
6. **Biomedical Engineering Division (BED)**
   Rachel C. Childers
7. **Chemical Engineering Division (CED)**
   Sarah A. Wilson
8. **Civil Engineering Division (CIVIL)**
   David A. Saftner
9. **College Industry Partnerships Division (CIP)**
   Charles E. Baukal
10. **Commission on Diversity, Equity, and Inclusion (CDEI)**
    Meagan Pollock
11. **Commission on P12 Engineering Education (CP12)**
    Katey Shirey
12. **Community Engagement Division (COMMENG)**
    Shoshanah Cohen
13. **Computers in Education Division (COED)**
    Mahnas Mohamadi-Aragh
14. **Computing and Information Technology Division (CIT)**
    Afsaneh Minaie
15. **Construction Engineering Division (CONST)**
    Kimberly Grau Talley
16. **Continuing Professional Development Division (CPD)**
    Charles E. Baukal
17. **Cooperative and Experiential Education Division (CEED)**
    Mary Andrade
18. **Corporate Member Council (CMC)**
    Stephanie Harrington
19. **Council of Sections (COS)**
    Christi L. Patton Luks
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    Samuel J. Dickerson
21. **Educational Research and Methods Division (ERM)**
    Bruce F. Carroll
22. **Electrical and Computer Engineering Division (ECE)**
    George E. Nasr
23. **Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)**
    Ira Harkness
24. **Engineering Ethics Division (ETHICS)**
    Rockwell Franklin Clancy
25. **Engineering Leadership Development Division (LEAD)**
    Meg Handley
26. **Engineering Libraries Division (ELD)**
    Chelsea Leachman
27. **Engineering Management Division (EMD)**
    Ekaterina Koromyslova
28. **Engineering Physics and Physics Division (EP2D)**
    Carl K. Frederickson
29. **Engineering Technology Council (ETC)**
    John L. Irwin
30. **Engineering Technology Division (ETD)**
    Mohammad Moin Uddin

CONFERENCE HIGHLIGHTS

31. **Entrepreneurship Engineering Innovation Division (ENT)**
Ginger Scarbrough

32. **Environmental Engineering Division (ENVIRON)**
Andrew Ross Pfluger

33. **Equity, Culture & Social Justice in Education Division (EQUITY)**
Robin Fowler

34. **Experimentation and Laboratory-Oriented Studies Division (DELOS)**
Dominik May

35. **Faculty Development Division (FDD)**
Michelle Soledad

36. **First-Year Programs Division (FYP)**
Joshua L. Hertz

37. **Graduate Studies Division (GSD)**
Tilman Wolf

38. **Industrial Engineering Division (IND)**
Thomas Omwando

39. **Instrumentation Division (INST)**
Herbert L. Hess

40. **Liberal Education/Engineering & Society Division (LEES)**
Marie Stettler Kleine

41. **Manufacturing Division (MFG)**
Fashiar Rahman

42. **Mathematics Division (MATH)**
James E. Lewis

43. **Mechanical Engineering Division (MECH)**
Siamak Farhad

44. **Mechanics Division (MECHS)**
Chris Venters

45. **Military and Veterans Division (MVD)**
Jerry Dahlberg

46. **Multidisciplinary Engineering Division (MULTI)**
Duncan Davis

47. **New Engineering Educators Division (NEE)**
Ahmed Dallal

48. **North Midwest Section**
Jay Wierer

49. **Pre-College Engineering Education Division (PCEE)**
Jennifer Keshwani

50. **Software Engineering Division (SWED)**
Mudasser Fraz Wyne

51. **Systems Engineering Division (SYS)**
Rafic Bachnak

52. **Technological and Engineering Literacy/ Philosophy of Engineering Division (TELPhE)**
Stephen T. Frezza

53. **Women in Engineering Division (WIED)**
Kristi J. Shryock

FOCUS ON EXHIBITS: Welcome Reception & Taste of the Town

5:00 P.M. – 7:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Join your colleagues as we open the ASEE Annual Conference Exhibit Hall and welcome attendees to the 2024 conference. Find old friends or forge new connections while you taste the best that Portland has to offer.

ASEE Bistro - Sponsored by Great Minds in STEM

5:00 P.M. – 7:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

MONDAY, JUNE 24

Sunrise Yoga

7:00 A.M. – 7:45 A.M.
Oregon Ballroom Foyer/Plaza,
Oregon Convention Center

ASEE Registration Open

7:00 A.M. – 5:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

MONDAY PLENARY & Keynote Speaker

8:00 A.M. – 9:00 A.M.
Portland Ballroom A - General Session
Oregon Convention Center

The opening plenary kicks off ASEE's Annual Conference with a bang! ASEE President Doug Tougaw will welcome attendees. A keynote address by Oregon State University President Jayathi Murthy will provide important insights and set the tone for the conference's dynamic learning opportunities and meaningful conversations.

Moderator:
Dr. Doug Tougaw P.E.

Speaker:
Dr. Jayathi Y. Murthy P.E.

Jayathi Y. Murthy, a national leader in higher education engineering teaching, research, and service, began her service as Oregon State University's 16th president on Sept. 9, 2022.

As OSU's president, Murthy is committed to improving access to college for all learners; advancing student success, undergraduate graduation rates, and inclusive excellence throughout the university; expanding OSU's strong research portfolio by investing in research infrastructure; and supporting faculty excellence in teaching, scholarship, research, and Extension and engagement programs.

Prior to joining Oregon State, Murthy served as the first woman dean of the UCLA Henry Samueli School of Engineering and Applied Science since January 2016. Murthy also served as chair of the mechanical engineering department at the University of Texas at Austin from 2012–2015; worked as a mechanical engineering professor at Purdue University from 2001–2011; and served as a professor of mechanical engineering at Carnegie Mellon University in Pittsburgh from 1998–2001. Murthy began her academic career at Arizona State University in 1984. From 1988 to 1998, Murthy worked at New Hampshire-based Fluent, Inc., a developer and vendor of the world's most widely used computational fluid dynamics software.

Murthy received a doctorate in mechanical engineering from the University of Minnesota, a master's degree in mechanical engineering from Washington State University, and a bachelor's degree in mechanical engineering from the Indian Institute of Technology, Kanpur, where she was named a distinguished alumna in 2012.

ASEE Bistro - Sponsored by Great Minds in STEM

9:00 A.M. – 6:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Exhibit Hall & Poster Board Viewing Open

9:00 A.M. – 6:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Two-Year College Model Design Competition

9:15 A.M. – 10:45 A.M.
Exhibit Hall B, C & D
Oregon Convention Center

Each student team will design and build an autonomous "Beaver Bot" robot to knock down 12 (popsicle sticks) trees and transport these sticks to either the river or pond areas of the 4' by 8' plywood play field.

A circuitous black line path (electrical tape) is provided on the play field to assist the Beaver Bot in finding the 12 trees, the river, and the pond. Each tree is held nearly upright by 3D-printed tree bases (or stumps). The robot must adhere to the rules of the model design competition, which includes an exhibition session.

The objective of this competition is for students to experientially appreciate the challenges in every step of the engineering design process from start to finish. Designing and building something from an idea is probably why

they chose engineering in the first place. Use this design competition as a platform to reinforce valuable classroom principles and have some engineering fun along the way!

https://robotresearchlab.com/asee-model-design-competition/26th-annual-asee-model-design-competition

For those interested in: Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College.

Moderator:
Mr. Philip J. Regalbuto and Pamela J. Silvers

FOCUS ON EXHIBITS: Networking Break & ASEE Division Poster Session

9:15 A.M. – 10:45 A.M.
Exhibit Hall B, C & D
Oregon Convention Center

Make connections, exchange ideas, and expand your professional circle as you connect with fellow attendees, industry experts, and thought leaders. Whether you're seeking new collaborations, brainstorming ideas, or expanding your network, this morning event can help.

DISTINGUISHED LECTURE: Design Signatures: A Journey from Design Expertise to Design Awareness

11:00 A.M. – 12:30 P.M.
Oregon Ballroom 203
Oregon Convention Center

What does design look like? How do designers spend their time scoping out a problem, developing alternative solutions, and evaluating their designs? Are there typical patterns of engagement in design activities that differ depending on level of design expertise? Questions such as these guided Cynthia Atman's early research on engineering-design processes.

To address these questions, Atman worked with many colleagues to collect data from a large number of individuals ranging in expertise who solved multiple design problems. Analysis of these data provides empirical evidence that as individuals gain expertise as designers, they engage in different patterns of design behavior. In recent years, she has been focusing on ways to bring these research results into the complex process of design teaching. What ties the efforts together is the following idea: Every instance of a design process can be represented with a design signature—a tracing of design activities over time that can be represented as a timeline. These representations are effective tools for teaching undergraduate engineers to be aware of their own design processes.

In this presentation, Atman will share her "research-to-practice" journey from doing detailed, specific research on design expertise to navigating the complicated world of design teaching. She will talk about some of her detours and side paths along the way, and the amazing communities that she has had the privilege to work with. Her hope is that listeners can relate to the challenges and joys of her research-to-practice journey and/or be inspired to try out the idea of design signatures in their teaching.

Moderator:
Dr. Corey T. Schimpf

Speaker:
Dr. Cynthia J. Atman
University of Washington

Cynthia J. Atman is the founding director of the Center for Engineering Learning & Teaching (CELT), a professor in Human Centered Design & Engineering, and the inaugural holder of the Mitchell T. & Lella Blanche Bowie Endowed Chair at the University of Washington. Dr. Atman is co-director of the Consortium to Promote Reflection in Engineering Education (CPREE), funded by the Leona M. and Harry B. Helmsley Charitable Trust. She was director of the NSF-funded Center for the Advancement of Engineering Education (CAEE), a national research center that was funded from 2003–2010. Her research focuses on engineering design learning, considering context in engineering design, and the use of reflection to support learning. She is a fellow of the American Association for the Advancement of Science (AAAS) and ASEE. Dr. Atman holds a Ph.D. in Engineering and Public Policy from Carnegie Mellon University.

ASEE General Body Meeting and Finances Town Hall

11:00 A.M. – 12:30 P.M.
Portland Ballroom B – SGS
Oregon Convention Center

Free Time - Lunch Available for Purchase in the Exhibit Hall

12:30 P.M. – 1:30 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Take advantage of this free time to peruse the exhibits and poster papers, as well as enjoying the different tasty fare Portland has to offer.

Menu items include:

- Portland Roasting I
- Portland Roasting II
- DragonFire Wok
- Dragon Boat Grill
- EA Pacific Crust Pizza Co
- Ginkoberry Marketplace
- EA Bento
- Mac + Cheese Cart

DISTINGUISHED LECTURE: Building Pathways and Breaking Down Barriers in Culturally Responsive and Community-Centered Engineering Education

1:30 P.M. – 3:00 P.M.
Portland Ballroom C
Oregon Convention Center

The intersection of the engineering design process and culturally responsive pedagogy presents a promising avenue for a more inclusive approach to engineering education and integration of engineering design in math and science content. This talk delves into the integration of culturally responsive engineering education within K–12 classrooms, aiming to improve student engagement and academic achievement. Through the presentation of research and practical examples, insights into teachers' preferences and challenges when implementing a culturally responsive engineering design process will be provided.

Furthermore, in the realm of academia, the significance of forging and nurturing meaningful partnerships with community members cannot be overstated. This talk explores the pivotal role of authentic partnerships between higher education institutions and local communities in advancing culturally responsive education. These partnerships prioritize lifting the voices of those with lived experiences and tacit knowledge, recognizing them as the true experts on what is needed for their schools and communities. By collaborating with the community, rather than working on the community, these partnerships ensure that educational practices are relevant, respectful, and effective.

Ultimately, this presentation provides valuable recommendations for STEM education researchers and practitioners seeking to integrate culturally responsive pedagogy into their instruction. It also addresses forming sustainable, authentic community partnerships guided by cultural humility and aiming to tackle systemic barriers in STEM education.

For those interested in: Broadening Participation in Engineering and Engineering Technology and Pre-College.

Speaker:
Prof. Mariam Manuel
University of Houston - COE

Mariam Manuel, Ph.D., is a Clinical Assistant Professor in the College of Natural Sciences and Mathematics at the University of Houston. Dr. Manuel is a nationally recognized STEM education researcher and practitioner, drawing from her experience as a classroom teacher and first-generation student to champion culturally responsive STEM education. Her research on the intersection between engineering design and culturally responsive pedagogy was awarded the Best Paper and Best DEI Paper at the 2022 American Society for Engineering Education (ASEE) conference in the Pre-College Engineering Education Division. Dr. Manuel's impactful efforts and community partnerships recently helped secure an NSF Racial Equity in STEM grant, dedicated to expanding underserved students' access to STEM education and extending on the success of the STEM RISE program.

Greet the Stars! ASEE New Members & First Timers Orientation

1:30 P.M. – 3:00 P.M.
Portland Ballroom B – SGS
Oregon Convention Center

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

Interdivisional Town Hall Meeting

3:15 P.M. – 4:45 P.M.
Portland Ballroom B – SGS
Oregon Convention Center

Interdivisional Town Hall Meeting: Fostering Comprehensive and Holistic Development in Engineering Students

The annual Interdivisional Town Hall provides a forum for members from various divisions and attendees to discuss topics relevant to the entire ASEE membership. With multiple divisions, our organization values diverse perspectives, fostering cross-divisional partnerships, and creating resources to address challenges at national and international levels. This year's discussion will center on enhancing the student experience. As faculty, instructors, and staff, we aim to make a difference by exploring and creating meaningful next steps for key aspects of students' journeys in engineering education and professional development.

The first half will allow for intimate, roundtable conversations based on provided discussion prompts, listed below.

The second half of the Town Hall will introduce KEEN, the Kern Entrepreneurial Engineering Network, and a framework for faculty to engage students via curiosity, connections, and creating value in the classroom. Participants will collaboratively engage with EngineeringUnleashed.com resources to realize activities for their engineering courses.

Both parts of the Town Hall will lead directly to roundtable discussions to share recommendations and generate ideas. Individuals will be asked to share and apply their skills, knowledge, and expertise to these conversations in crafting shareable deliverables for guiding future effort.

Topic 1 – Equity Issues in STEM Preparation

Engineering students often encounter equity challenges in math and STEM preparation, especially when navigating the demanding engineering curriculum towards graduation. Some students may feel discouraged or be discouraged from continuing in the field. It is essential for all students to have access to quality education and resources, regardless of their backgrounds. Our goal is to cultivate a more inclusive and diverse engineering field that generates innovative solutions benefiting society. Additionally, we seek to create a talent pool that might not currently be adequately represented.

Topic 2 – Working Together Effectively

Teamwork and collaboration are essential skills in all career sectors. Engineering students often face challenges with team dynamics during collaborative activities, which can impact project outcomes and interpersonal relationships in and beyond school and the workplace. By addressing these challenges early, students can develop a positive team environment, improve communication, and enhance collaboration skills crucial for their future engineering careers. What are some best practices for equitable team formation, team mentorship, and teaching collaboration? How can collaboration and teamwork be effectively assessed? What innovative ideas do you have to promote collaboration as a vital skill, including methods for discussion, debriefing, and practice?

Topic 3 – Using Artificial Intelligence Appropriately

The responsible use of AI can greatly benefit engineering faculty, staff, and students by enhancing their learning, deepening their understanding of studied concepts, and preparing them for future careers. It is necessary for students to understand the limitations and ethical considerations of AI, as well as how it can complement their skills. As educators, it is essential for us to understand and help develop guidelines and recommendations at our universities regarding the responsible use of AI in teaching and learning.

Topic 4 – Global Citizenship in Engineering Education

Global education and citizenship for engineering students involve understanding diverse perspectives and addressing social justice issues in engineering practice. Students should have opportunities to develop global competencies such as communication, cooperation, social responsibility, identity, and knowledge by practicing both professional skills and applying technical solutions with a global perspective, sustainability, and consideration for cultural and social expectations.

Instructional Showcase

3:15 P.M. – 4:45 P.M.
Portland Ballroom C
Oregon Convention Center

Come see the latest innovations in teaching. Engineering education instructors will share laboratory demonstrations, classroom demonstrations, and approaches to teaching. The session is set up with individual tables for each instructor so that you can get an in-depth explanation of any of the innovations that interest you.

Participants include:

1. *A Collaborative Virtual Air Quality Learning Experience with Kakenya's Dream (Resource Exchange, Diversity)*
   Jessica Moriah Vaden
2. *Activities for Exploring Beauty and Elegance in Engineering in a First-Year Seminar*
   Lee Rynearson
3. *Assessing Teamwork and Design Habits in a First-Year Engineering Design Course*
   Catherine Hamel
4. *Bend But Do Break: An Inquiry Experience Into Material Properties (Resource Exchange)*
   Rachelle Pedersen
5. *Bridge Construction Curriculum for K–12 Students (Resource Exchange)*
   Sarah Lynn Orton
6. *Determination of Diffusivity via Time-lapse Imaging with a 3-D printed spectrometer and a Raspberry PI*
   Lisa Weeks
7. *BYOE: McKibben Creature - A Low-Cost Robotic Simulation of a Biological Environment*
   Joseph Richard Midiri
8. *BYOE: SeaKatz 2.0 – Vision and Pneumatic Claw for Underwater Robot with VR Simulation*
   Iftekhar Ibne Basith
9. *BYOE: Soft Robotic Fish Project*
   Cassandra Sue Ellen Jamison
10. *BYOE: Wacky-Waving-Non-Inflatable-Arm-Flailing-Tube-Man for Teaching Soft Robotics*
    Cassandra Sue Ellen Jamison
11. *Corsi-Rosenthal Box Learning Module: How can we make clean air accessible for schools? (Resource Exchange)*
    Kristina Wagstrom
12. *Dangerous Toys Project*
    Dan Harbowy
13. *Empathic Design in Cross-cultural STEM Education: Playground Project (Resource Exchange)*
    Soo Won Shim
14. *Engineering Lessons for Family Engagement (Resource Exchange)*
    Natasha Wilkerson
15. *Green STEMS Activities for STEM and Sustainability (Resource Exchange)*
    Ryan Brown
16. *Improved Team Skill Development through a Semester-long Teamwork Report*
    Melissa Simonik
17. *Incorporating Bio-Inspiration into First Year Design*
    Danielle Grimes
18. *Integrating Engineering Design and Microelectronics in a Range of Pre-College Courses (Resource Exchange)*
    Tamara J. Moore
19. *Lighting a Pathway to Energy Transitions: Collecting, Interpreting and Sharing Engineering Designs and Research Data across a School-based Agrivoltaics Citizen Science Network (Pre-College Resource/Curriculum Exchange)*
    Michelle Jordan
20. *Milling Circuit Pathways: Enhancing Students' Competencies and Experiences with Microelectronics (Resource Exchange)*
    Sean Wiseman
21. *Passports to Engage Students in Engineering*
    Stephany Coffman-Wolph
22. *Project-Based Service-Learning for First-Year Engineering Students*
    Fayekah Assanah and Kristina Wagstrom
23. *Resource Exchange: The Basics of Computer Hardware for Middle School Students*
    Stephany Coffman-Wolph

24. *Rosie's Walk: A Culturally Responsive Computational Thinking PK–1 Challenge (Resource Exchange)*
Katherine C. Chen

25. *Sharing Stories & Building Belonging in a First Year Engineering Course*
Dori Harcharik

26. *Smart Wireless Weather Station and Climate Console (Resource Exchange)*
Jeritt Williams

27. *Snap and Pop: Investigating Energy Transformations With Rubber Popper Toys (Resource Exchange)*
Rachelle Pedersen

28. *Templating Circuit Sub-systems to Improve Outcomes in a First-year Circuit Design Project*
Brian Krongold

29. *The Wicked Engineer: Centering Intercultural Competency and Equity (Resource Exchange)*
Cherish C. Vance

30. *Transforming First-Year Engineering Curriculum with Diversity, Equity, Inclusion and Entrepreneurial-Minded Learning*
Lisa Murray

31. *Using Storybooks and Storytelling to Prompt Discussion and Reflection of Growth Mindset*
Kimberlyn Gray

32. *Utilizing the Remind App to Engage Families in Engineering Talk and Design (Resource Exchange)*
Amber Simpson

Moderator:
Dr. Elliot P. Douglas

Papers Presented:

1. ***Using the Remind App to Engage Families in Engineering Talk and Design (Resource Exchange)***
Amber Simpson (Binghamton University)

2. ***Bend But Do Break: An Inquiry Experience Into Material Properties (Resource Exchange)***
Dr. Rachelle M. Pedersen (Texas A&M University) and Justin Wilkerson (Texas A&M University)

3. ***Snap and Pop: Investigating Energy Transformations With Rubber Popper Toys (Resource Exchange)***
Dr. Rachelle M. Pedersen (Texas A&M University) and Justin Wilkerson (Texas A&M University)

4. ***Engineering Lessons for Family Engagement (Resource Exchange)***
Mrs. Natasha Wilkerson (Texas A&M University) and Justin Wilkerson (Texas A&M University)

5. ***Smart Wireless Weather Station and Climate Console (Resource Exchange)***
Julian Andrew Schmitt, Marlene Urbina (Illinois State University), Alexander Michael Perhay, Orla Maire Sheridan, Chance William Tyler (Illinois State University), Jeritt Williams (Illinois State University), Dr. Matthew Aldeman (Illinois State University), Dr. Jin Ho Jo (Illinois State University), and Allison Antink-Meyer (Illinois State University)

6. ***Milling Circuit Pathways: Enhancing Students' Competencies and Experiences with Microelectronics (Resource Exchange)***
Sean Wiseman (Purdue University), Tori Constantine (Purdue University), Deana Lucas (Purdue University, West Lafayette), Dr. Greg J. Strimel (Purdue University, West Lafayette), and Prof. Tamara J. Moore (Purdue University, West Lafayette)

7. ***The Wicked Engineer: Centering Intercultural Competency and Equity (Resource Exchange)***
Dr. Patrick Sours (The Ohio State University) and Cherish C. Vance (The Ohio State University)

8. ***Bridge Construction Curriculum for K–12 students (Resource Exchange)***
Dr. Sarah Lynn Orton P.E. (University of Missouri, Columbia)

9. ***Green STEMS Activities for STEM and Sustainability (Resource Exchange)***
Dr. Ryan Brown (Illinois State University), Allison Antink-Meyer (Illinois State University), Soo Won Shim (Illinois State University), Richard Bex (Illinois State University), and Anthony Lorsbach

10. ***Rosie's Walk: A Culturally Responsive Computational Thinking PK-1 Challenge (Resource Exchange)***
Tiffany Davis, Nea Sann, Dr. Mia Dubosarsky (Worcester Polytechnic Institute), Shakhnoza Kayumova (University of Massachusetts Dartmouth), and Dr. Katherine C. Chen (Worcester Polytechnic Institute)

11. *Resource Exchange: The Basics of Computer Hardware for Middle School Students*
Dr. Stephany Coffman-Wolph (Ohio Northern University), Dr. Ahmed Ammar (Ohio Northern University), and Henry Timothy Debord (Ohio Northern University)

12. *Corsi-Rosenthal Box Learning Module: How Can We Make Clean Air Accessible for Schools? (Resource Exchange)*
Aaron Richardson (University of Connecticut), Todd Campbell (University of Connecticut), Marina A. Creed (UConn Health and UConn School of Medicine), and Dr. Kristina M. Wagstrom (University of Connecticut)

13. *Integrating Engineering Design and Microelectronics in a Range of Pre-College Courses (Resource Exchange)*
Prof. Tamara J. Moore (Purdue University, West Lafayette), Siddika Selcen Guzey (Purdue University, West Lafayette), Dr. Greg J. Strimel (Purdue University, West Lafayette), Dr. Morgan M. Hynes (Purdue University, West Lafayette), Dr. Kerrie A. Douglas (Purdue University, West Lafayette), Dr. Molly H. Goldstein (University of Illinois Urbana-Champaign), Rachel E. Gehr (Purdue University, West Lafayette), Emily M. Haluschak (Purdue University, West Lafayette), Ms. Azizi Penn (Purdue Engineering Education), Ms. Breejha Sene Quezada (Purdue Engineering Education), Deana Lucas (Purdue University, West Lafayette), JaKobi Burton (Purdue University, West Lafayette), Dr. Mary K. Pilotte (Purdue University, West Lafayette), and Rena Ann Sterrett (Purdue Engineering Education)

14. *A Collaborative Virtual Air Quality Learning Experience with Kakenya's Dream (Resource Exchange, Diversity)*
Miss Jessica Moriah Vaden (University of Pittsburgh) and Dr. Melissa M. Bilec (University of Pittsburgh)

15. *Empathic Design in Cross-cultural STEM Education: Playground Project (Resource Exchange)*
Soo Won Shim (Illinois State University) and Anthony Lorsbach

16. *Lighting a Pathway to Energy Transitions: Collecting, Interpreting and Sharing Engineering Designs and Research Data Across a School-based Agrivoltaics Citizen Science Network (Pre-College Resource/Curriculum Exchange)*
Dr. Michelle Jordan (Arizona State University), Ms. Katie Spreitzer (Arizona State University), and Sarah Bendok

DISTINGUISHED LECTURE: Supporting Change Makers in STEM with the Change Maker's Toolkit

3:15 P.M. – 4:45 P.M.
Oregon Ballroom 203
Oregon Convention Center

As developers, you support academics in STEM who wish to change their teaching, their classrooms, and their curricula. Your expertise helps them understand how improving pedagogy can transform both student learning and their own academic experiences. Even as these change makers take on this important work, they may encounter resistance to their efforts from others who see pedagogical change as a challenge to the traditions of the department or the college, or they may struggle to communicate about the change they envision with audiences within and outside of their department. The purpose of this distinguished lecture is to introduce you to a change maker's "toolkit" that you can use to provide additional support to the individuals with whom you work.

The format will depart from a traditional lecture and instead provide hands-on practice with two change-maker tools that have been effective with a variety of groups (faculty - teaching track, tenure-track, and tenured), department chairs, college administrators, graduate students, and post-doctoral researchers).

In addition to the hands-on portions of the talk, Williams will discuss how equipping individuals with these tools can help them overcome the obstacles that can often derail any pedagogical innovation. The tools introduced are from Williams's own book, *Making Changes in STEM Education: The Change Maker's Toolkit*, published by Routledge in 2023. The approach in the book is to present practical tools in support of change makers that are based in research from various fields (e.g., organizational psychology, higher education, etc.). In addition to the hands-on sessions, Williams will make time to solicit from attendees the challenges they have encountered with in their own work to promote change in STEM contexts; from their feedback,

Williams plan to offer additional resources that they can pursue after the lecture is concluded.

As a result of attending this session, participants will:

1. Understand the purpose of the change maker's toolkit as a way to support STEM academics who wish to make change in their specific educational contexts
2. Learn about two change maker tools that have been applied in a variety of academic environments
3. Practice these tools in order to determine their relevance to their own educational context
4. Offer their feedback regarding the specific challenges change makers face on their campus

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

Julia M. Williams joined the faculty of Rose-Hulman Institute of Technology in 1992, then assumed duties as Executive Director of the Office of Institutional Research, Planning, and Assessment in 2005. From 2016 to 2019, she served as Interim Dean of Cross-Cutting Programs and Emerging Opportunities. Williams is the author of *Making Changes in STEM Education: The Change Maker's Toolkit* (Routledge 2023). Her publications on assessment, engineering, professional communication, and tablet PCs have appeared in the *Journal of Engineering Education* and *IEEE Transactions on Professional Communication*, among others. She has been awarded grants from Microsoft, HP, and the National Science Foundation. Most recently she has been named as an inductee into the 2023 American Society of Engineering Education Hall of Fame. Currently, she supports the work of the Revolutionizing Engineering Departments (NSF RED) grant recipients, as well as faculty in the Kern Entrepreneurial Engineering Network (KEEN).

FOCUS ON EXHIBITS: Summertime Social

5:00 P.M. – 6:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Wind down Monday evening at the Summertime Social. Beat the heat with refreshing cold lemonade and mingle with fellow attendees in a relaxed atmosphere. Make sure to check out the exhibitor booths!

Campus Representative Member Recruitment Awards Reception

7:00 P.M. – 9:00 P.M.
Regency Club
Hyatt Regency Portland (HQ Hotel)

Free ticketed event

TUESDAY, JUNE 25

Sunrise Yoga

7:00 A.M. – 7:45 A.M.
Oregon Ballroom Foyer/Plaza,
Oregon Convention Center

ASEE Registration Open

8:00 A.M. – 5:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

TUESDAY PLENARY & Corporate Member Council Keynote Speaker

8:00 A.M. – 9:00 A.M.
Portland Ballroom A - General Session,
Oregon Convention Center

ASEE President-Elect Grant Crawford takes the stage at the Tuesday plenary, offering remarks and recognizing the best Professional Interest Council (PIC); Zone; and Diversity, Equity, and Inclusion papers. Authors will provide short presentations on their papers. Finally, two visionary leaders will offer the Corporate Member Council keynote through a thought-provoking "fireside chat"-style conversation that promises to spark innovation, inspire change, and leave you with invaluable insights.

Featuring:

2023 Best Overall PIC Paper:

PIC II

Nuestro Impacto: An Insider Look into the Connections between Our Past Experiences and Current Teaching and Mentoring Practices
Idalis Villanueva Alarcón (University of Florida)
Laura Melissa Cruz Castro (University of Florida)
John Alexander Mendoza (University of Florida)
John Mendoza Garcia (University of Florida)

Edward Latorre-Navarro (University of Florida)
Lilianny Virguez (University of Florida)

2023 Best Overall Diversity, Equity and Inclusion Paper:

Designing and Implementing a Workshop on the Intersection between Social Justice and Engineering
Kavitha Chintam, (Northwestern University)
Alexis Prybutok, (University of Washington)
Willa Brenneis
Jonathon M. Chan
Joie Green
Ruihan Li
Meagan Olsen, (Northwestern University)
Sapna L. Ramesh, (Northwestern University)
Carolyn E. Ramirez
Dhanvi Ram Vemulapalli, and
Jennifer Cole, (Northwestern University)

2024 Best Overall Zone Paper- Zone IV:

Innovations in Remote Teaching of Engineering Design Teams
Soyoung Kang (University of Washington)
Ken Yasuhara (University of Washington)
Per G. Reinhall (University of Washington)
Kathleen E. Kearney(University of Washington)
Jonathan T.C. Liu (University of Washington)
Jonathan D. Posner (University of Washington)
Erin Blakeney (University of Washington)
Eric Seibel (University of Washington)
and Shayla Payne

Moderator:
Dr. B. "Grant" Crawford P.E.

Speaker:
Sri Yash Tadimalla

Sri Yash Tadimalla is a Ph.D. student in the College of Computing and Informatics at UNC Charlotte, where he is pursuing an interdisciplinary degree in Computer Science and Sociology. Serving as the Technology Focal Point for the United Nations MGCY Science Policy Interface and the incumbent General Secretary of the World Student Platform for Engineering Education Development (SPEED), he advocates for the equitable advancement of STEM education on a global scale, actively fostering youth participation in STEM initiatives through engagements with the United Nations Major Group and stakeholder mechanisms. As an immigrant delving into technology access research, Yash offers nuanced insights into the intricate links between educational and technological accessibility and global food and health insecurities, all profoundly shaped by his research, personal journey and professional experiences. At UNC Charlotte he is assisting various NSF research projects under the Center for Humane AI, the Center for Education Innovation (CEIR) Lab, and the Human-Centered Computing (HCC) Lab. He is the President of the Charlotte Human-centered Research Group and the Graduate and Professional Student Government at UNCC, serving on various Boards and Committees at Charlotte. His research agenda explores how an individual's identity influences their interaction with and learning of technology, particularly in the domains of Artificial Intelligence (AI) and Computer Science (CS) education. He has showcased his research at distinguished international conferences across diverse global locations including North America, South Africa, Western Europe, Australia, and South Asia.

Speaker:
Jim Hanna
Microsoft Corporation
Director of Datacenter Engineering, Procurement, and Construction Sustainability

In his 30 years in sustainability, Jim Hanna has become a passionate industry expert in driving companies to link their investments in sustainability directly to business outcomes. As one of the pioneers advancing the "business case for sustainability," he's spent his career working to help companies move beyond anecdotal, qualitative and non-business metrics to justify and compete internally with other business priorities for their sustainability and community investments. In the last several years, he's also applied that expertise and business-linkage lens to the area of corporate community investments, a field that is still essentially a philanthropic endeavor at most companies. He's built a groundbreaking methodology to quantify community thriving, link investments to substantive community impacts, and monetize the ROI of corporate community investments.

Work Experience:

Hanna joined Microsoft in 2006 as the company's first director of datacenter sustainability, providing strategic environmental direction in the fields of land-use, green building, energy, and water to the company's growing cloud computing platform. He then transitioned to lead the company's focus on urban planning and community prosperity in its datacenter communities around the world.

Previously, Hanna served as chief sustainability officer for Starbucks, leading the company's global sustainability

mission in green building, energy conservation, and the circular economy, in addition to serving as Starbucks' external environmental policy voice and advocate on Capitol Hill.

Prior to Starbucks, Hanna served as Director of Environmental Affairs for Xanterra Parks & Resorts at Yellowstone National Park.

A native of Washington state, Hanna earned a BS in Environmental Sciences from Washington State University and is a U.S. Green Building Council LEED-accredited professional. He serves on the advisory council of the Yellowstone Park Foundation and the Washington State University College of Arts and Sciences Advisory Council.

DISTINGUISHED LECTURE: It Takes a Village to Disrupt the Status Quo in Engineering Education

9:15 A.M. – 10:45 A.M.
Deschutes Ballroom B
Hyatt Regency Portland (HQ Hotel)

"It takes a village to raise a child" is an African proverb that is commonly mentioned when we talk about the role of a wider community in the development of a young person and the positive impact that we can collectively have on a child as they grow. This talk will build on that idea but situate this proverb in the context of broadening participation of Black and brown engineers.

The preliminary findings of this CAREER award include evidence of the institutional and interpersonal villages that surround undergraduate engineering students at six universities that are consistently named among the top producers of Black and brown engineers. By focusing on the macro-organizational structures and micro-interactions with caregivers and peers, we begin to understand facets of students' lived experiences that promote and impede success. One idea that will become paramount is the role that everyone, regardless of where they sit in an institution or the life of an engineering student, plays in broadening participation of Black and brown engineers. In many ways, this talk will cause us to rethink what it means to be members of a village that is collectively striving to shift who gets to be an engineer.

For those interested in: Broadening Participation in Engineering and Engineering Technology

Speaker:
Dr. Jeremi S. London
Vanderbilt University

Dr. Jeremi London is an Assistant Provost for Academic Opportunities and Belonging, and an Associate Professor of Practice of Mechanical Engineering at Vanderbilt University. London started her faculty career at Arizona State University (ASU) in 2015 and joined Virginia Tech's Department of Engineering Education in Fall 2018. As Director of the RISE (Research's Impact on Society and Education) Research Group, she uses mixed methods research designs to advance the scholarship of impact and investigate impact-driven questions in engineering education as a whole, and in the context of organizational changes that rectify inequities in engineering. Said differently, London focuses on the complicated relationship between research and practice in engineering education with hopes that an understanding of the barriers to integrating research and practice will someday lead to scalable solutions that shrink the time between what we know (from research) and what we do (in practice).

Her scholarly interests have been supported by over $11M and have resulted in 30 journal articles and over 60 peer-reviewed conference papers. London has also received best paper awards and given keynote addresses as part of the community's recognition of her work. London's most notable research award, an NSF CAREER award entitled, "Disrupting the Status Quo Regarding Who Gets to be an Engineer," focuses on discovering and sharing what's in the "secret sauce" of five institutions that are consistently named among the top producers of Black and brown engineers.

She is now occupying what feels like a once-in-a-lifetime opportunity as the Curriculum Innovation Lead on the new Virginia Tech Innovation Campus (opening Fall 2024). London is wielding insights about graduate engineering education, inclusive pedagogy, and experiential learning to guide the structural design of a one-year professional master's in computer science and computer engineering that centers student engagement with industry mentors through sponsored projects. The campus leaders aspire for the Innovation Campus to be the most diverse graduate tech program. in the nation, and London is doing her part to help make this a reality.

London has worked at the National Science Foundation, GE-Healthcare, and Anheuser Busch. She holds B.S. and M.S.

degrees in Industrial Engineering, and a Ph.D. in Engineering Education, all from Purdue University. London also completed a postdoc at ASU in the Engineering Education Systems & Design program before joining their faculty.

DISTINGUISHED LECTURE: Richard Felder, ASEE Hall of Fame Inductee

11:00 A.M. – 12:30 P.M.
Portland Ballroom C
Oregon Convention Center

Free Time - Lunch Available for Purchase in the Exhibit Hall

12:30 P.M. – 1:30 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Take advantage of this free time to peruse the exhibits and poster papers, as well as enjoying the different tasty fare Portland has to offer.

Menu items include:

- Portland Roasting I
- Portland Roasting II
- DragonFire Wok
- Dragon Boat Grill
- EA Pacific Crust Pizza Co
- Ginkoberry Marketplace
- EA Bento
- Mac + Cheese Cart

Exhibit Hall & Poster Board Viewing Open

12:30 P.M. – 6:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

DISTINGUISHED LECTURE: Materials Education for Sustainability: A Design-led Approach

3:15 P.M. – 4:45 P.M.
Regency Ballroom B
Hyatt Regency Portland (HQ Hotel)

Moderator:
Joel L. Galos and Dr. Kaitlin Tyler

Speaker:
Dr. Bosco Yu
University of Victoria
Assistant Professor, Mechanical Engineering,
University of Victoria

FOCUS ON EXHIBITS: Networking Break

5:00 P.M. – 6:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Take the opportunity at the end of the day to chat with exhibitors and fellow attendees at our Tuesday evening networking break. You'll be sure to come away with new insights and maybe even some future collaborations.

WEDNESDAY, JUNE 26

Sunrise Yoga

7:00 A.M. – 7:45 A.M.
Oregon Ballroom Foyer/Plaza
Oregon Convention Center

ASEE Registration Open

8:00 A.M. – 4:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Exhibit Hall and Poster Board Viewing Open

9:00 A.M. – 12:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

ASEE Bistro - Sponsored by Great Minds in STEM

9:00 A.M. – 12:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

FOCUS ON EXHIBITS: Networking Break & NSF Grantees Poster Session

9:45 A.M. – 11:15 A.M.
Exhibit Hall B, C & D
Oregon Convention Center

Don't miss the last opportunity to network in the exhibit hall. Explore the latest products, services, and solutions showcased by exhibitors. From cutting-edge technologies to innovative strategies, uncover valuable insights and discover new opportunities. Make sure to peruse the posters from the National Science Foundation's 256 grantees!

ASEE Awards Lunch

11:00 A.M. – 12:30 P.M.
Portland Ballroom B – SGS
Oregon Convention Center

Join us at this lunch to honor and celebrate the exceptional achievements of leaders in engineering and engineering technology. Recognized for their innovation, dedication, and impact will be:

- ASEE Hall of Fame inductees
- Outgoing Board members
- Outstanding Zone campus representatives
- 2023 Best Paper Award winners
- 2024 ASEE Fellows
- PIC and Annual Conference Chairs

ASEE will also announce the 2024 winners of the Society's prestigious national and Society awards.

Note: This is a ticketed event. Non-award winners' tickets cost $50.

Free Time - Food Available for Purchase at Concession Stands in Convention Center

1:00 P.M. – 2:00 P.M.
Exhibit Hall B, C & D
Oregon Convention Center

Food Available for Purchase at Concession Stands in Convention Center

DISTINGUISHED LECTURE: To: Society From: Tech, with Love

2:00 P.M. – 3:30 P.M.
A105
Oregon Convention Center

In a recent intimate discussion of her book *Viral Justice*, Dr. Ruha Benjamin commented that "you cannot teach someone you do not love." Sitting with the power of this comment, Coley was pushed to reflect on how such translates to the field of engineering, its processes, products, people, and innovations. Specifically, she wondered how each of these aspects would be impacted if pursued through the lens of love. Historically, ideologies underpinning technical advancement have been treated disparately from constructs of love, justice, power, equity, and access. Yet, it is at the seams of engineering, technology, and these constructs where the greatest possibility of galvanizing a paradigm shift toward attainment of a sociotechnical future where all can thrive lies. Calling upon bell hooks' conceptualization of love across the components of knowledge, care, commitment, respect, trust, and responsibility, Coley interrogates how this framing can inform sociotechnical innovation for realizing a reimagined future. In this dialogue, connections will be made to understanding how engineering's pedagogical approaches, research agendas and development for good, partnering in purpose, and thinking in terms of global systems and impact can be re-envisioned through the lens of love.

Please join in this discussion as we dream together the possibilities of innovating through love.

Speaker:
Dr. Brooke Charae Coley
Arizona State University, Polytechnic Campus

Brooke Coley is an assistant professor in engineering at the Polytechnic School of the Ira A. Fulton Schools of Engineering

at Arizona State University. Prior to joining the Polytechnic School, Coley completed postdoctoral training at ASU in engineering education. Coley also served as the associate director for the Center for Diversity in Engineering at the University of Virginia and as an American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow, where she worked at the National Science Foundation (NSF) for several years.

Coley is a bioengineer and social justice scholar. In her work, she hopes to push the bounds of traditionally heteronormative engineering environments through transdisciplinary approaches. Intrigued by the intersections of engineering education, mental health, and social justice, Coley's primary research interest focuses on virtual reality as a tool for developing empathetic and inclusive mindsets. She is also interested in the lived experience of hidden populations in engineering education and innovations for more inclusive pedagogies. Coley also co-leads two NSF-funded studies addressing diversity in university-affiliated makerspaces and the impact on the identity formation of underrepresented undergraduate engineering students, and, most recently, exploring the untapped potential of community college undergraduate engineering students and the factors impacting their decision making pathways.

Coley is an advocate for inclusion in all levels of her work—research, teaching and service. She has a commitment to global connectivity and awareness and recently co-facilitated the workshop, "Inclusive Maker Pedagogies and the Power of Story for Innovative Engineering Education," at the Higher Engineering Education Alliance 2017 Conference in Can Tho, Vietnam. This past summer, Coley was also honored as an Apprentice Faculty Grant Recipient by the Educational Research Methods Division of the American Society for Engineering Education for her commitment to innovation in teaching and potential to make substantial contributions to engineering education. Next spring, Coley will introduce a new graduate-level course addressing the persistent inequities in STEM, with a focus on engineering. She is a strong supporter of student organizations and is a voluntary mentor for the newly formed Poly chapter of the National Society of Black Engineers.

2024 Program Chair & Co-Chair Appreciation Celebration

5:30 P.M. – 6:30 P.M.
Skyview Terrace
Oregon Convention Center

Free ticketed event

ASEE invites all 2024 Chairs and Co-Chairs to this appreciation celebration.

ASEE President's Farewell Reception

6:30 P.M. – 8:00 P.M.
Portland Ballroom A - General Session
Oregon Convention Center

Join us to celebrate the achievements of 2023–2024 President Doug Tougaw and welcome the vision and aspirations of 2024–2025 President Grant Crawford. The ceremonial transfer of the gavel from the outgoing to the incoming ASEE President signifies continuity and the promising future of our association.

Speakers:
Dr. Doug Tougaw P.E.
Valparaiso University
2023–2024 ASEE President

Dr. B. "Grant" Crawford P.E.
Quinnipiac University
2024–2025 ASEE President-Elect

MONDAY, JUNE 24

SPONSOR TECH SESSION: Everything You've Wanted to Know About EOP: Panel and Q&A with EOP Funders and Practitioners - Presented by ABET

11:00 AM – 12:30 PM
B112 - Sponsor Tech Room
Oregon Convention Center

The climate crisis and environmental degradation are among our greatest challenges. Despite the considerable influence engineers possess to address or exacerbate these challenges, engineering students are not typically graduating with the skills, knowledge, experiences and mindsets needed to tackle current and future environmental and social challenges. Demand and urgency is growing from students and industry to better prepare graduating engineers to protect and improve our planet and our lives.

Engineering for One Planet (EOP) is a collaborative effort to address this gap by supporting the integration of fundamental climate and sustainability topics into all engineering disciplines. Catalyzed by The Lemelson Foundation and VentureWell in 2020 —with contributions from hundreds of collaborators that span geographies, lived experiences, and sectors — EOP strives to ensure that all engineers are equipped with core skills in social and environmental sustainability, such as systems thinking, life cycle assessment, and related professional and leadership skills, such as communication, interdisciplinary teamwork and critical thinking.

The EOP initiative fosters curricular transformation through three interrelated approaches: 1) developing and sharing teaching resources through community feedback and vetting in diverse courses and programs, 2) funding faculty change efforts and supporting faculty capacity-building, and 3) activating and supporting collaboration among diverse stakeholders across sectors.

This session will provide participants a comprehensive understanding of the teaching and funding resources available and lessons learned from educators using EOP resources to achieve curricular change. Presenters from ASEE, ABET, NSF, EOP and academic institutions will share their best practices and lessons learned from leveraging EOP resources to integrate sustainability into engineering courses and programs, as well as across and between institutions. Audience engagement through Q&A will be a priority in this session.

Speakers:
Dr. Michael Milligan, CEO ABET

Stephanie Harrington, Director Constituent Relations, ABET and Adjunct Engineering Faculty, Northern Virginia Community College

Matthew Verleger, National Science Foundation, the Engineering Education & Centers division., Embry-Riddle Aeronautical University

Ro Worthy, Assistant Chair, Civil and Environmental Engineering Department, Kennesaw State University

Dr. Sarah DeLeeuw, Research Projects Director at ASEE

Dr. Andrea Welker, PhD., PE, Dean of the School of Engineering and Professor of Civil Engineering at The College of New Jersey

Cindy Anderson, Alula Consulting and strategy consultant for Engineering for One Planet with The Lemelson Foundation.

SPONSOR TECH SESSION: Fostering Student Success: How Inter- and Transdisciplinary Programs, an Emphasis on Mental Wellness, and other Student-centered Pedagogy Approaches Increase Student Retention - Presented by Oregon State University

11:00 AM – 12:30 PM
B111 - Sponsor Tech Room
Oregon Convention Center

Discover the unique initiatives of the Oregon State University College of Engineering that empower engineering students from day one. A shared first-year experience for all engineering-interested students launches them into career exploration, real-world problem-solving, and community building. A transcript-visible certificate program immerses students in real-world problems with the support of academic spaces and resources. An engineering-specific mental wellness program accompanies students throughout their engineering journey. These and other strategies underscore Oregon State University's commitment to diversity, equity, inclusion, and belonging. Explore distinctive curricular and co-curricular experiences, experiential learning techniques, and inclusive pedagogies. Oregon State

Engineering will present a range of initiatives that have significantly contributed to student success, well-being, and increased retention.

Presenters:
Natasha Mallette, PhD, PE(WY)
Director of Engineering+
Oregon State University

Sarah Oman, PhD
Senior Instructor I
Oregon State University

Ingrid Scheel
Instructor
Oregon State University

Shannon Frasca
LCSW
Wellness Coordinator and Counselor
Oregon State University

SPONSOR TECH SESSION: Transform Your Teaching With Case Studies - Presented by Engineering Unleashed

1:30 PM – 3:00 PM
B111 - Sponsor Tech Room
Oregon Convention Center

Discover an innovative workshop that rethinks case studies in engineering education with a focus on opportunities and impacts. Dive into the exhilarating world of indoor skydiving with our exclusive iFLY Case Studies, just one of the many tools designed to enhance technical skills and cultivate an entrepreneurial mindset. Traditionally utilized in business and law, case studies now bring story-based learning to engineering, moving beyond failure analysis to inspire critical thinking and relevance. As a participant in this workshop, you will explore the new iFLY Case Studies (iFLY is an indoor skydiving wind tunnel), along with other case studies. Delve into the case development process for technical courses and unlock a new dimension of learning.

Workshop Facilitators:
Ken Bloemer
University of Dayton

Sidaard Gunasekaran
University of Dayton

Doug Melton
The Kern Family Foundation

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

1:30 PM – 3:00 PM
B112 - Sponsor Tech Room
Oregon 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. 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 visits.

Speakers:
Leonard Bohmann, Ph.D., PE
Associate Dean for Academic Affairs
Michigan Technological University

Michael Johnson, Ph.D.
Interim Associate Provost for Faculty Success
Interim Associate Vice President for Faculty Affairs
Texas A&M University-College Station

SPONSOR TECH SESSION: EMpowering Your Next Career Steps - Presented by Engineering Unleashed

3:15 PM – 4:45 PM
B111 - Sponsor Tech Room
Oregon Convention Center

Have you ever wondered how you could set yourself apart when applying for jobs after graduate school? What knowledge, skills, and attributes you should highlight in your applications? This session will provide you with an Entrepreneurial Mindset (EM) framework that ties back to elements that can be helpful for future careers (academic, industrial, government, etc.). The session will employ

concept maps to help identify EM elements that you may have already developed and include a panel with current graduate students discussing how EM has contributed to their career development. The session will conclude with resources that can be used to further strengthen your EM and how you can leverage the Engineering Unleashed community to meet these goals.

Workshop Facilitators:
Cheryl Bodnar
Rowan University

Stephanie Cutler
Penn State

Cayla Ritz
PhD student at Rowan University

SPONSOR TECH SESSION: From Evidence-based Research to Impact: Insights from e4usa's NSF-funded Initiatives

3:15 PM – 4:45 PM
B112 - Sponsor Tech Room
Oregon Convention Center

Join us to explore the transformative impact of Engineering for US All (e4usa)!

In this 90-minute session, we will delve into e4usa's journey over the past six years as an NSF-funded project while highlighting the strong research foundation that underpins the newly formed 501(c)(3) e4usa non-profit organization. We will present a subset of our team's research findings spanning more than two decades and discuss how this research has shaped e4usa's trajectory. Specifically, we will review research findings on assessing student learning on open-ended, team-based engineering design projects, promoting diversity in engineering, designing inclusive curricula, and developing professional learning for high school teachers.

The session format includes a 60-minute presentation linking key research findings with the operational elements of the e4usa non-profit stemming from these findings. This will be followed by a 30-minute interactive segment where attendees can engage directly with our team. This segment encourages discussions on potential collaborations, reflections on our research findings, and sharing strategies for scaling similar projects for broader impact. Do not miss this opportunity to contribute to the dialogue aimed at democratizing and demystifying engineering for all.

Speakers/Facilitators:
Darryll Pines
University of Maryland

Samuel Graham
University of Maryland

Stacy Klein-Gardner
Engineering for US All

Adam Carberry
The Ohio State University

Medha Dalal
Arizona State University

Jennifer Kouo
Johns Hopkins University

Kevin Calabro
University of Maryland

Bruk Berhane
Florida International University

Cathy Lachapelle
STEM Education Insights

Jeannie Chipps
Johns Hopkins University

Samieh Askarian
University of Cincinnati

Colleen Murray
University of Maryland

TUESDAY, JUNE 25

SPONSOR TECH SESSION: Leveraging Generative AI for Engineering Course Development: Save Yourself Time and Improve Student Learning - Presented by McGraw Hill

9:15 AM – 10:45 AM
B110 - Sponsor Tech Room
Oregon Convention Center

Refreshments will be served.

Space is limited.

Learn how faculty can harness generative AI tools like ChatGPT, MidJourney, Gamma, custom-built GPTs, and others to streamline course development and elevate educational outcomes.

Discover practical applications of AI for creating high-quality presentations, comprehensive lecture notes, targeted learning objectives, and robust assessments.

This presentation will include both demonstrations and critical discussion on the ethical use of AI in education, its environmental implications, and the challenge of academic integrity in the digital age. Attendees will leave equipped to enhance teaching efficiency and enrich student learning experiences by effectively integrating AI into their educational practices.

SPONSOR TECH SESSION: Using the FE Exam for Effective Outcomes Assessment and Course Improvement - Presented by NCEES

9:15 AM – 10:45 AM
B111 - Sponsor Tech Room
Oregon Convention Center

Join us for an informative session on how you can use the FE exam as part of your continuous improvement processes for your individual courses and engineering programs. The FE exam provides valuable, nationally normed direct assessment data that allows you to understand how your students compare to those across the nation. It can also be a valuable part of your continuous improvement process, using the NCEES Subject Matter Reports to provide you with information about the strengths and weaknesses of students in your courses and program in addition to the ABET-required student outcomes. Information packets provided. Questions answered.

Speaker:
Grant Crawford, P.E., Ph.D., F.ASEE
Colonel (retired)
U.S. Army

Grant Crawford is a Professor of Mechanical Engineering for the School of Computing and Engineering at Quinnipiac University. He is a former Director of the Mechanical Engineering Program at the United States Military Academy at West Point, New York. He has served as a Program Evaluator for ABET's Engineering Accreditation Commission and a Commissioner and Team Chair for the Engineering Technology Accreditation Commission. He has been a member of the Fundamentals of Engineering Exam Committee for the National Council of Examiners for Engineers and Surveyors (NCEES) since 2005 and has chaired the committee. He is currently serving as the President-Elect for ASEE.

Speaker:
John Steadman, Ph.D., PE

John Steadman is a 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.

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

9:15 AM – 10:45 AM
B112 - Sponsor Tech Room
Oregon Convention Center

This presentation is specifically tailored for individuals who are considering becoming a PEV and would like to gain a comprehensive understanding of the responsibilities involved in this role. The talk will delve into the intricacies of an ABET visit, as seen from the perspective of a PEV, starting from the initial assignment all the way through the campus visit and post-visit activities. The presentation will touch upon various topics including effective communication with the team, strategies for reviewing program materials, and establishing communication with the program prior to the visit. Additionally, the presentation will cover mandatory documentation requirements, arranging travel, and what to expect upon arriving on campus. Throughout the presentation, emphasis will be placed on the importance of teamwork in the decision-making process and the support that experienced team members can provide.

Speaker:
Jennifer Brock
Associate Dean for Academics
Professor of Mechanical Engineering
University of Alaska Anchorage College of Engineering

SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: GenAI for MATLAB-based Curriculum Design - Presented by MathWorks

11:00 AM – 12:30 PM
B110 - Sponsor Tech Room
Oregon Convention Center

In this session, we will explore the transformative power of Generative Artificial Intelligence (GenAI) in engineering education, showcasing the experimental tools MathWorks has made available for educators and students to explore the use of Generative AI with MATLAB. We will summarize what we've learned so far about promising educator use cases of GenAI. We'll review concerns about academic integrity, dive into the potential of Custom GPTs for creating instructional content and student assessments, and share insightful customer presentations that demonstrate the practical application of these technologies in teaching. We conclude with resources you can use to begin experimenting with GenAI with MATLAB and share your feedback to help guide our GenAI plans to enhance engineering education.

SPONSOR TECH SESSION: Presented by The Boeing Company

11:00 AM – 12:30 PM
B111 - Sponsor Tech Room
Oregon Convention Center

SPONSOR TECH SESSION: From Lab to Lectern: Transforming Grad Students into Effective Communicators - Presented by Oregon State University

11:00 AM – 12:30 PM
B112 - Sponsor Tech Room
Oregon Convention Center

Join Oregon State Engineering and learn about our annual program to transform graduate student engineers into confident and effective communicators. We'll discuss how we guide students through creating, practicing, and delivering compelling research talks supported by a cohort experience and individual presentation coaching. The experience equips them with the vital communication skills needed to share the impact of their work throughout their careers.

Presenter:
Glencora Borradaile, Ph.D.
Associate Dean for Graduate Programs
Oregon State University

SPONSOR TECH SESSION: Using AI in STM32 Hands-on Laboratories: Supporting Students 24/7 with a Generative AI Assistant while Interacting with Real Remotely Accessible STM32 Microprocessors Available through LabsLand and DigiKey

1:30 PM – 3:00 PM
B110 - Sponsor Tech Room
Oregon Convention Center

This presentation features a collaboration between LabsLand, Digi-Key, and STMicroelectronics. The session will highlight the new AI assistant relying on GPT4 used in combination with 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 show demonstrations and allow attendees to use the assistant, and see the advantages of the tool and the different customizations that can be done, and also discuss the limits and the trends in this area. By integrating this in the remote laboratories, students can expand their laboratory experience by interacting with real equipment, but have an AI assistant that can support through the process of building the application. Students this way not only have the hardware anywhere anytime, but also the high-level support of the tool, and instructors can control the answers and the communications between the system and the student. 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

Speaker:
Pablo Orduna
CEO
LabsLand

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.

SPONSOR TECH SESSION: Leading the Fields: Updates from the Texas A&M Space and the Texas A&M Semiconductor Institutes

1:30 PM – 3:00 PM
B111 - Sponsor Tech Room
Oregon Convention Center

Join us as we discuss how Texas A&M is leading the field of space exploration with the world's largest indoor moonscapes and Marscapes for testing, training and workforce development. Additionally, we'll explore the partnership with the Texas A&M Semiconductor Institute and how it will be leveraged to address the state and national need for trained experts in the field of semiconductors and microelectronics.

Speakers:
Dr. Nancy Currie-Gregg
Director, Texas A&M Space Institute

Dr. David Staack
Associate Vice Chancellor for Research

SPONSOR TECH SESSION: The Instant Innovator: AI and EML for the Classroom - Presented by Engineering Unleashed

1:30 PM – 3:00 PM
B112 - Sponsor Tech Room
Oregon Convention Center

This workshop explores AI classroom innovation methods. Explore our "poor-man's" AI training prompts to generate deeply compelling questions for any discipline. Experiment with our entrepreneurially minded learning (EML) combinatory methods to create instant, novel teaching innovations that show students the opportunity, impact, and value for any topic. Discuss the critical role of adaptability in higher education as new AI tools are released, such as Sora that can generate high-quality video from a few lines of text. For this workshop, you'll need access to a current AI platform, such as ChatGPT 3.5/4.0, Copilot, or Gemini.

Workshop Facilitators:
A.L. Ranen McLanahan
The Kern Family Foundation

Maria-Isabel Carnasciali
Merrimack College

SPONSOR TECH SESSION: How to teach Edge AI - Reflections from Arm Education and Kingfisher Lab

3:15 PM – 4:45 PM
B111 - Sponsor Tech Room
Oregon Convention Center

Mobile and edge devices will soon be able to deploy Large Language Models (LLMs) in AI applications that will have a transformational impact on society. How can academia prepare the next generation of engineers to leverage the opportunities and address the challenges presented by Edge AI? In this Arm Education sponsored session, Catherine Breslin, an AI consultant from Cambridge, UK, and co-founder of Kingfisher Labs, will discuss key considerations for teaching AI in Higher Education, including:

- Motivations for running Edge AI
- Best practices for teaching Edge AI
- Key technologies
- Addressing the societal impact of AI

During the session, we will also be announcing details of the upcoming 'Teaching AI at the Edge' Global Design Contest and inviting academics worldwide to create and submit innovative examples of how to teach the subject. Submissions will be showcased on the EduLabs community portal created by the University of Southampton, with incentives to encourage global participation. Join us at 3:15 PM on June 25th to learn more!

About Catherine Breslin: As an AI consultant and founder of Kingfisher Labs, Catherine works with leaders in companies bringing cutting-edge technology to market. Catherine has worked across academia, product development and consulting. She has built technology, managed people and projects that span large distributed teams, and can translate complex technical concepts for business audiences, or vice versa. With over two decades experience as an AI Scientist building voice and language AI models, and years of technical leadership, Catherine brings expert knowledge and best practice to AI companies. Previous roles include

AI Scientist and Manager at Cambridge University, Toshiba Research, Amazon Alexa, and Cobalt Speech.

About Arm Education: The mission of the Education team at Arm is to help close education and skills gaps in Computer Engineering and STEM for the benefit of society. By drawing on Arm's technological expertise, innovation and partner ecosystem, we provide content to help both teachers and learners achieve their objectives. In addition to the teaching and learning resources below, we enable access to IP, tools and other support to universities for Research Enablement and work closely with academic and industry partners on Research Collaborations.

WEDNESDAY, JUNE 26

SPONSOR TECH SESSION: Calling All Educators! Do You Dream of Educational Products That Perfectly Fit Your Teaching Style and Student Needs? - Presented by McGraw Hill

8:00 AM – 9:30 AM
B110 - Sponsor Tech Room
Oregon Convention Center

Refreshments will be served. Space is limited.

Want to make learning an active, engaging, and meaningful experience for students? In this workshop, you can help shape the future of learning tools by providing feedback on what YOU want to see.

What to Expect:

- Future-Focused Brainstorming: Help us envision the ideal educational product. What features would revolutionize your classroom? Weigh in on multimedia elements, interactives, and updates you want to help keep students engaged and actively learning.
- Collaborative Problem-Solving: Work with fellow educators to identify solutions and develop strategies for impactful learning experiences

Benefits for You:

- Direct Impact: Your feedback will directly influence the development of future educational products.
- Networking Opportunities: Connect with fellow educators, share best practices, and build a community passionate about improving learning.

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

8:00 AM – 9:30 AM
B112 - Sponsor Tech Room
Oregon 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
Adjunct Director of Professional Offerings
ABET

Robyn Hall
Director, Professional Programs
ABET

SPONSOR TECH SESSION: Adopting and Assessing Story-driven Learning Approaches in Your Courses - Presented by Engineering Unleashed

11:30 AM – 1:00 PM
B110 - Sponsor Tech Room
Oregon Convention Center

In this hands-on workshop, you will be introduced to the key elements of personal storytelling and engage in story-driven learning as a pedagogical method and learn how this method can help you create value for your students. You will hear from faculty about their experiences with story-driven learning as a path toward developing students' entrepreneurial mindset and other psychosocial outcomes; faculty will also share reflections from their students about these learning experiences within several different courses

across multiple disciplines. Participants will also get the opportunity to learn what the science says behind story-driven learning's impact on entrepreneurial mindset and how to implement this form of pedagogical assessment. Throughout this workshop, you will also participate in several SDL applications instructors have developed for use in any engineering department. Lastly, participants will be given the opportunity to work in small groups to determine strategies for SDL integration into their own courses.

Speakers:
Kevin Haas
Georgia Tech

Kali Morgan
Georgia Tech

Ariana Turner
Georgia Tech

Hyeyeon Lee
Georgia Tech

Michelle Marincel Payne
Rose-Hulman Institute of Technology

Julia Williams
Rose-Hulman Institute of Technology

SPONSORS

ASEE would like to thank the following sponsors for their generous support of the 2024 ASEE Annual Conference. Thank you for your commitment to furthering excellence in engineering and engineering technology education.

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FUTURE ASEE ANNUAL CONFERENCES

2025
June 22 – 25

MONTRÉAL,
QUÉBEC, CANADA

2026
June 21 – 24

CHARLOTTE, NORTH CAROLINA

2027
June 20 – 23

TORONTO,
ONTARIO, CANADA

2028
June 11 – 14

PITTSBURGH, PENNSYLVANIA

SUNDAY, JUNE 23rd SESSIONS

U69 - Sunrise Yoga

7:00 A.M. - 7:45 A.M., OREGON BALLROOM FOYER/PLAZA, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

U143 - ASEE Board of Directors Meeting

8:00 A.M. - 3:00 P.M., REGENCY BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Board of Directors

ASEE Board of Directors Meeting

U154 - Quiet Room

8:00 A.M. - 5:00 P.M., A101 - QUIET ROOM, OREGON CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

U169 - Complimentary Childcare - Limited Availability - Advanced Registration Required

8:00 A.M. - 5:00 P.M., HOLLADAY SUITE - CHILDCARE ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

https://form.jotform.com/KiddieCorp/aseekids

Advance Registration Required:

We are delighted to announce that KiddieCorp will be hosting the children's program during the 131st Annual Conference and Exposition. With thirty-eight years of experience, KiddieCorp has been a trusted provider of high-quality children's programs and youth services for conventions, trade shows, and special events.

KiddieCorp's longstanding partnership with the American Academy of Pediatrics has played a key role in establishing us as a premier provider of children's program services. Our commitment to caring for your children is our top priority, ensuring they not only have fun but also receive excellent care.

CHILDREN'S PROGRAM DETAILS

Date and Hours:

Sunday, June 23 -8:00 a.m. to 5:00 p.m.

Monday, June 24 - 8:00 a.m. to 5:00 p.m.

Tuesday, June 25 - 8:00 a.m. to 5:00 p.m.

Wednesday, June 26 - 7:00 a.m. to 5:30 p.m.

Ages:

6 months through 15 years old

Ratios:

1:2 for children ages 6 months through 11 months old

1:3 for children ages 1 through 2 years old

1:5 for children ages 3 through 5 years old

1:7 for children ages 6 through 12 years old

1:10 for children ages 13 through 15 years old

Registration:

Child care hours are provided in 2-hour blocks (with the exception of the last hour). Please book only the block(s) you intend to utilize. Child care availability is limited and operates on a first-come, first-served basis. A waitlist will be initiated once capacity is reached.

Please note that this program is complimentary for attendees of the ASEE Annual Conference only.

Please note: To prevent overbooking, a credit card will be required to confirm your reservation. This credit card information will be kept on file and will only be charged if you fail to attend your reserved days/hours or if you cancel your entire reservation after June 10, 2024.

You have until June 10th to make changes to your reservation without incurring a fee. After this date, a $50.00 per day no-show/cancellation fee will apply.

Advance registration deadline: June 10, 2024

We encourage early registration as availability is limited and operates on a first-come, first-served basis. To secure advance reservations, both the registration form and credit card info must be received by KiddieCorp. On-site registration will be limited to available space.

U169A - Mothers Room

8:00 A.M. - 5:00 P.M., A102 - MOTHERS ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Mothers Room

U169B - Quanser

9:00 A.M. - 12:00 P.M., A103, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

U269 - ASEE Registration Open

8:00 A.M. - 5:30 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

U269B - BACK BY POPULAR DEMAND! ASEE Annual Conference Career and Graduate Fair

10:00 A.M. - 12:00 P.M., OREGON BALLROOM FOYER/PLAZA, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

The ASEE Career and Graduate Fair continues at the 2024 Annual Conference. This event will bring universities, companies, and organizations to recruit students, faculty, and others and allow participants opportunities to enhance their careers or further their education.

The fair will offer three different options for attendees:

1) Education opportunities at academic institutions for students from high school to postdocs

2) Job opportunities at academic institutions for professors, lecturers, etc.

3) Private sector jobs for students and graduates.

The fair will take place outside of the Oregon Ballroom at the Portland Convention Center. 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 Career and Graduate Fair.

Click here to see what specific positions they are looking for:

https://aseecmsprod.azureedge.net/aseecmsprod/asee/media/content/annual%20conference/2024/06072024_campus-career-fair-meter-board.pdf

CURRENT LIST OF RECRUITERS:

Auburn University

Clarkson University

eFellows Engineering Postdoctoral Fellowship

Hanover College

Hofstra University

Illinois State University

Iowa State University

LMU Science and Engineering Graduate Programs

MathWorks

NCEES

North Carolina State University

Northwestern University Master of Science in Law Program

Siemens Digital Industries Software

Texas A&M University

The Ohio State University

The University of Kansas – Madison and Lila Self Graduate Fellowship

The University of North Carolina at Charlotte

Tufts University Graduate School of Arts and Sciences

U.S. Coast Guard Academy

University of Illinois - The Grainger College of Engineering

University of Michigan, Biomedical Engineering

Virginia Tech, College of Engineering

U269C - Regional Hub Members

9:00 A.M. - 11:00 A.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Headquarters

Regional Hub Members

U482 - Undergraduate Experience Committee All Dean and Associate/Assistant Dean Meeting

12:00 P.M. - 3:30 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Cynthia Paschal, Vanderbilt University; John-David Yoder, Ohio Northern University; Lynne Molter, Swarthmore College

This session for academic leaders responsible for 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. At this year's gathering, we will start with lunch and conversation followed by discussion of ABET and DEI, student mental health, and improving the faculty pipeline.

Ticketed event: $60.00 advanced registration and $70.00 on site registration

U492A - IFEES-GEDC Special Session

1:00 P.M. - 3:30 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Organizations Outside ASEE

IFEES-GEDC 2-HOUR Session

Introductions

Hans J. Hoyer, secretary-general, IFEES and executive director, GEDC

Stephanie Farrell, president, IFEES

1:15pm Session

Facilitators:

Yannis Yortsos, USC

Cindy Cooper, Senior Program Officer, The Lemelson Foundation

Sustainability: A Global Perspective

This panel will address key issues related to sustainability and the role of engineering schools across the globe in addressing this challenge. It will discuss the state of energy transition, as summarized in COP28, and describe other aspects of decarbonization across the various domains of the economy and society, including those contained in the UN Sustainable Development Goals and the National Academies grand challenges. Its goal is to further advance the call for action among engineering schools at the global scale in terms of both engineering education and research.

2:00 pm Session

Facilitators:

Ramiro Jordan. The University of New Mexico

Ann-Perry Witmer, University of Illinois at Urbana-Champaign

PEACE ENGINEERING

The WHY

There are urgent calls to action by the NASEM, the Nobel Prize Summit, the United Nations and global scientists to address and solve, in this decade (2020–2030), crucial and widely recognized global challenges to peace and security before they become more complex and more environmentally, financially, and socially costly—before we reach the point of no return.

The WHAT

Peace Engineering is the application of STEAM principles, sustainable practices, cultural sensitivity, and innovation to promote and support peace. It recognizes the important contribution that engineering, the hard and social sciences and other disciplines such as law and finance make toward a world where prosperity, sustainability, security, transparency, and a culture of equity and quality thrive.

The HOW

An outcome of the First Global Peace Engineering Conference, WEEF-GEDC 2018, was the creation of the Peace Engineering Consortium, a collective tasked with developing and disseminating knowledge, tools, and talent to influence peace efforts globally. Some high priority topical areas are 1) Climate Security; 2) Life Sustainable Infrastructures; 3) Materials and Sustainability; 4) Complex Systems Modeling, 5) Global Security and Cooperative

Monitoring, and 6) Diplomacy and Conflict resolution.

New Mexico Dashboard Case Study

Water, Air Quality, Health, and Finance/Economic Dashboard (WAQHE)

The Dashboard is the outcome of a final project of the ENG 220—Engineering, Business, Sustainability, Ethics, Society, and Justice, Equity, Diversity, Accessibility, Inclusion (JEDAI)—class in the Peace Engineering Minor program at UNM. 54 undergraduate students participated and divided into 6 teams working in Water, and 4 in Air Quality, Health and Finance/Economics.

Two vital and unique resources for the planet are water and air. Any alterations in their composition can have detrimental effects on humans and living organisms. The public must recognize that action is required. Availability of verifiable, trusted, compiled, accessible data will promote our critical need to work toward equitable adaptation and attain sustainable resiliency in our city, county, state, country, and globally.

A Verifiable Trusted data dashboard is needed to provide on-line access to historical, modern, and current perspectives on water, air quality, health, and economic information. A dashboard is needed to help inform, not influence, the public about why all concerned citizens, institutions, and levels of government must do their part!

2:45 pm Introduction to 3:00 pm session

S.Y., Engineering Education Journal (EER), Tsinghua University

3:00 pm Closing remarks

Dr. Hans J. Hoyer

U492B - DEI Leaders Meeting – by invitation only

12:00 P.M. - 3:30 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Organizations Outside ASEE

DEI Leaders Meeting – by invitation only

U408A - SUNDAY WORKSHOP: Flower∞Bots: Robotics for the Streets—Open-Source Robotics for Academics that Grow with the Learner

1:00 P.M. - 3:30 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Speaker: Dr. Carlotta A. Berry, Rose-Hulman Institute of Technology

Robotics is an ideal tool for illustrating connections between multiple disciplines such as computer science, electrical engineering, and mechanical engineering. It is also a great way to get young people interested in, involved in, and excited about the possibilities of STEM. However, there are some challenges that may limit the ability of some diverse or resource limited communities from being able to access the benefits of robotics education. These barriers include the high cost of educational robotics platforms and lack of a knowledge base for novice educators to access. In this workshop, participants will learn how to build and program the Flower∞Bots platform with graphical and text-based programming using controllers such as MicroBit, Arduino Uno, and Raspberry PI Pico. They will use the open-source hardware and software resources available on YouTube, GITHub, HacksterIO and Instructables to increase their knowledge base and enable them to take it back to their classroom. Each participant will get one open-source robot to take home along with all of the resources such as videos, CAD files, printer files, and code to create more for their classroom or university. Learn more about the robot at youtube.com and NoireSTEMinist.com.

Schedule:

- Learn about robot parts and build the robot.
- Use graphical programming with MicroBit on the Flower∞Bot to create a behavior.
- Use sketch programming with Arduino Uno on the Flower∞Bot to create a behavior.
- Use MicroPython with Raspberry Pi Pico W on the Flower∞Bot to create a behavior.

Ticketed event: Flower Bots - $60.00 advanced registration and $70.00 on site registration

U408B - 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., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Speakers: Dr. Aditya Johri, George Mason University; Dr. Andrew Katz, Virginia Polytechnic Institute and State University

The use of artificial intelligence (AI) based applications is increasing across all engineering disciplines. Higher education needs to keep pace with this development to leverage these developments to conduct better research and training and, critically, to 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, CoPilot, and Autodesk, has become popular. GAI is a subfield of AI in which deep learning and large language models are used to generate new content. Generative writing is being used to generate copy, write job descriptions, and create technical documentation. Generative design systems allow engineers to start with pre-designed models whereas generation of code based on a prompt is making the software development process more efficient.

This workshop will focus on several aspects related to use of 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. In addition to introducing attendees to different uses of GAI, we will work through some in-depth scenarios. We will also discuss ethical issues related to the use of AI and GAI and how to use these applications in a more responsible manner.

This workshop presents a unique format that allows attendees to see the impacts of these tools through analysis and first-hand experience. Attendees will be invited to create accounts on different GAI application sites so that they can experience them firsthand. After the workshop, attendees will be given a list of tools and applications to continue to explore different features and evaluate the applications' usefulness for their research and teaching practices.

Ticketed event: SUNDAY WORKSHOP: The use of Generative AI - $5.00 advanced registration and $10.00 on site registration

U413 - SUNDAY WORKSHOP: Developing Student Design Teamwork Skills: Lessons and Stories from Three Institutional Models

1:00 P.M. - 3:30 P.M., COLUMBIA 2, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Chris Dakes, University of Wisconsin - Madison

Speakers: Dr. James Iain Campbell, Imperial College London; Dr. Deesha Chadha; Chris Dakes, University of Wisconsin - Madison; Angela Kita, University of Wisconsin - Madison; Dr. Mary Lynn Realff; Dr. Christa M Wille

This workshop is a collaboration between three institutions: The Georgia Institute of Technology, The Imperial College London, and The University of Wisconsin-Madison. Aligned with the stated DEED priority topic, "Teams and Teamwork in Design Education", these three institutions have an emerging collaboration to further develop student teamwork skills grounded in diversity, equity, and inclusion (DEI) as a foundational aspect of effective teamwork.

Each institution has distinct yet complementary approaches and the proposed workshop will engage participants in mini versions of activities from each campus. For example, Imperial College London delivers their teamwork training via a one-off, non-academic workshop for first-year students designed to simultaneously foster cohesion and develop networks/friendships amongst a diverse, international student cohort. Georgia Tech has many years of experience grounding their work in Gallup Clifton Strengths and is expanding their implementation by partnering with, and mentoring staff at UW-Madison. Both Georgia Tech and UW-Madison work directly with groups of faculty to integrate student-based workshops throughout their courses.

Furthermore, UW-Madison uses a Community of Practice model to host specific faculty workshops to advance teaching and learning of professional skills, including teamwork.

Participants will have direct experiences with all three

models and have time to individually reflect, and discuss in facilitated small groups, their ideas for how to adapt what they learned into their own institutional context.

Free ticketed event

U413B - SUNDAY WORKSHOP: Design Signatures in the Wild: Making the Invisible Visible

1:00 P.M. - 3:30 P.M., COLUMBIA 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Cynthia Atman, University of Washington

Speakers: Dr. Cynthia J. Atman, University of Washington; Prof. Reid Bailey, University of Virginia; Prof. Susannah Howe, Smith College; Dr. Daria A. Kotys-Schwartz, University of Colorado Boulder; Dr. Micah Lande, South Dakota School of Mines and Technology; Miss Yuliana Flores, University of Washington; Prof. Eli Patten, University of Washington; Krina Patel, University of California, Berkeley; Dr. Jennifer A. Turns, University of Washington; Dr. Cynthia J. Atman, University of Washington

This workshop engages with the question: How can we help students more intentionally engage in a design process, so as to help them become reflective practitioners of design? On a theoretical level, this work connects to the diversity of design processes and research on metacognition. This workshop also builds on prior research on helping students to become more meta-cognitively aware of their current state in a design process. In this interactive 2.5-hour workshop, participants will learn how to build self-awareness for their students and themselves through self-tracked design timelines (that we are calling Design Signatures). With these design signatures visible in front of them, students and faculty can better reflect on an otherwise invisible design process. The workshop facilitators have extensive experience implementing these concepts in their design teaching. Students are excited about what they are able to learn, as demonstrated by the following quotes.

Free ticketed event

U414 - SUNDAY WORKSHOP: Uplifting the Comunidad: A Focus on Latin* Students in Engineering Education at Today's Colleges and Universities

1:00 P.M. - 3:30 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Sarah Rodriguez, Virginia Polytechnic Institute and State University

Speakers: Dr. Lara Perez-Felkner, Florida A&M University - Florida State University; Ciera Fluker; Dr. Sarah Rodriguez, Virginia Polytechnic Institute and State University; Maria L. Espino M.A, University of California, Los Angeles; Adriana Facundo, Boise State University; Rene Alberto Hernandez, Virginia Polytechnic Institute and State University; Kevin Jay Kaufman-Ortiz, Purdue University at West Lafayette (COE); Dr. Tonisha B. Lane, Virginia Polytechnic Institute and State University; Mr. Brian Le, University of California, Los Angeles; Mr. Leonardo Pollettini Marcos; Dr. Janice Mejía, Northwestern University; Dr. Renata A. Revelo, The University of Illinois at Chicago; Dr. Sarah Rodriguez, Virginia Polytechnic Institute and State University; Mr. Hector Enrique Rodríguez-Simmonds, Purdue Engineering Education; Lisette Esmeralda Torres-Gerald; Ulises Juan Trujillo Garcia; Mr. Cristian Eduardo Vargas-Ordonez, P.E., Purdue University at West Lafayette (COE); Dr. Dina Verdin, Arizona State University, Polytechnic Campus

The growing population of Latin* engineering students have diverse identities and backgrounds, and they pursue engineering at a range of institutional types across and beyond the United States. Latin* engineering students have increased as a proportion of today's baccalaureate graduates to as high as 10.4% by 2016, up from 5.9% 20 years earlier (NCSES, 2021). However, Latin* engineering students continue to be underrepresented and face exclusionary engineering contexts. Latin* engineering students navigate a hidden curriculum of knowledges and ways of being not explicitly taught in their course work, which, if unlearned, can hinder their opportunities to succeed and advance in these fields (Villanueva et al., 2020).

Latin* engineering students also face other compounding challenges, including but not limited to stereotype threats based on their intersectional gender, class, race/ethnicity, and other identities (e.g., Rodriguez et al., 2022). To overcome these oppressions, Latin* students often leverage their community cultural wealth and funds of knowledge–assets they bring with them to college – to navigate engineering

spaces which might otherwise be potentially hostile learning environments (Revelo & Baber, 2017; Verdín & Godwin, 2018; Wilson-Lopez et al., 2016). Accordingly, enhancing equitable access to engineering classrooms and other opportunities in the field may support Latin* students' success and retention (see Fluker et al., 2022; Villanueva et al., 2021).

Set up as a Pecha Kucha with a Moderated Panel Discussion, the workshop will feature presentations from 10 teams (approximately 6 minutes each) followed by opportunities for both small- and large-group discussion and the creation of actionable plans for improving engineering education for Latin* students.

The presenters of this interactive symposium possess expertise related to access, equity, and persistence issues for Latin* engineering students in higher education. Collectively, their published works address various identities, contexts, and practices that influence Latin* engineering student success.

Leading the Workshop: Sarah L. Rodriguez, Lara Perez-Felkner, Ciera Fluker & selected authors from the upcoming book Latin* Students in Engineering: An Intentional Focus on a Growing Population

Free ticketed event

U416 - SUNDAY WORKSHOP: The Changing Role of Universities and Colleges in Accelerating Community Sustainability

1:00 P.M. - 3:30 P.M., F150, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderator: Peter Garforth,

Speakers: Peter John Garforth; Michael A. Nealon, Henry Ford College; Reuben Brukley, Henry Ford College; Nicholas Paseiro, Henry Ford College; Herbert Sinnock, Sheridan College; Spencer Wood, Humber College; Peter John Garforth

This workshop will focus on case studies of successful and rapid decarbonization of energy use in large, complex colleges, including challenges, opportunities, and results. The ability of the structured and integrated process to be effectively extended to host communities and the potential for academic curricula development will also be discussed. The workshop will be presented in sections, followed by a discussion shaped by some guiding questions.

3.1 Global Energy Transition

The opening section will present an overview of the current status of the world's energy systems' transition to near-zero carbon emissions. The driving factors for this transition, including global, federal, local, and institutional, will be discussed.

3.2 Decarbonizing Colleges and Universities

Today, most colleges and universities have some form of net-zero GHG goal for their operations, often accompanied by goals to expand related educational programs. Using the experience of a cohort of three US and Canadian colleges, this section will explore approaches that can successfully deliver on these goals and the residual economic benefits. It will also consider the crossover role of the transformed campus as a "Living Classroom" to support academic curricula. The discussion will focus on the decision-making and process steps that have proven highly successful and, equally importantly, approaches that are unlikely to succeed.

3.3 Colleges and Universities Accelerating Community Sustainability

This section will summarize the new interdisciplinary skills, processes, and structures needed for large, complex organizations, such as entire cities, to successfully plan and deliver their transformative net-zero goals. The academic opportunities these will create for colleges and universities will be substantial yet will be significantly different from currently recognized courses and degree programs, and will extend well beyond traditional engineering emphasis. They will also impact the institution's relationships with P-12 programs, host communities, local employers, and national and international stakeholders. The discussion will focus on the practical steps colleges and universities can take to meet the urgent reskilling needs of the wider community, and how these can be rapidly proliferated across multiple institutions.

Peter Garforth, Principal of Garforth International

Herb Sinnock, Director of Sustainability at Sheridan College

Michael Nealon, VP of Academic Affairs at Henry Ford College

Reuben Brukley, Director of Facilities at Henry Ford College

Nicholas Paseiro, IEMP Coordinator at Henry Ford College

Free ticketed event

U421 - SUNDAY WORKSHOP: Integrating Intercultural Competencies into Engineering Information Literacy Instruction

1:00 P.M. - 3:30 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Heather Howard, Purdue University Library TSS

Speakers: Heather Howard, Purdue University Library TSS

As future members of a global workforce, engineering students increasingly operate in intercultural work environments, both throughout their academic studies and professional careers post-graduation. Moreover, many engineering students will need to navigate international business scenarios and may feel unprepared to maneuver the diverse cultural landscapes ahead. Intercultural competency models also offer another lens for teaching information literacy by acknowledging culture's role and influence in how we create, gather, share, evaluate, and use information. In order to better prepare students for the increasingly globalized nature of business and engineering environments, this active-learning workshop will share practical strategies for integrating intercultural pedagogies into the information literacy classroom.

By the end of this workshop, attendees will be able to:

• Recognize the significance of intercultural competencies in engineering education and information literacy instruction.

• Discuss and implement intercultural competence models and frameworks in lesson planning.

• Develop strategies for incorporating intercultural pedagogies into information literacy instruction.

• Identify suitable tools and interventions in order to foster intercultural competence.

• Assess and measure learners' progress in developing intercultural competence.

Topics covered will include:

• What is intercultural competence?

• Intercultural competence assessments

• How we built this into a business information literacy course

• How this can be applied to engineering information literacy

• Intercultural activity ideas

• Building a lesson plan that includes intercultural pedagogies

Presenter Information:

Heather A. Howard is an Associate Professor and Business Information Specialist in the Purdue University Libraries and School of Information Studies. She is the Libraries liaison for Career Services, Managerial Communications, Hospitality and Tourism Management, Consumer Sciences, Strategic Management, and Women's, Gender, and Sexuality Studies. Heather is also an Adjunct Instructor in the Luddy School of Informatics, Computing, and Engineering at Indiana University-Purdue University, Indianapolis (IUPUI), teaching courses on Science and Technology Information and Business information for the MLS program. Before starting at Purdue in 2016, Heather worked as an Information Services liaison at Trine University where she was liaison to business, engineering, and technology. She holds a Bachelor of Science from Purdue University and a Master of Library Science from IUPUI. Her research interests focus on the scholarship of teaching and learning, including workplace readiness, intercultural competencies in the information literacy classroom, and integrating technical standards into business curricula.

Zoeanna A. Mayhook is an Assistant Professor and Business Information Specialist at the Purdue University Libraries and School of Information Studies. As a library liaison, she specializes in various areas, including Business Law, Entrepreneurship, Finance, Marketing, Management Information Systems, Quantitative Methods, and Supply Chain and Operations Management. Prior to joining Purdue in 2020, Professor Mayhook worked within libraries at Wabash College, the University of Washington Tacoma Library, and Gonzaga University Library, where she gained valuable experience in instruction and research strategies. Her educational background includes bachelor's and master's degrees in business administration from Gonzaga University, as well as a master's in library and information science from the University of Washington. Her research pursuits contribute to the scholarship of teaching and learning and explore business information literacy, financial literacy, intercultural competencies, and visual literacy.

Annette Bochenek, Ph.D., is an Assistant Professor and Business Information Specialist at the Purdue University Libraries and School of Information Studies. Her current teaching and research focus on her interest in information literacy, qualitative methods, and primary source research methods across disciplines. Additionally, she serves as a library liaison to Entrepreneurship, Organizational

Behavior and Human Resources, Organizational Leadership and Supervision, Agricultural Economics, Social Entrepreneurship and Film. Her work also builds upon her former career as a public business librarian, where she coordinated financial literacy programming, including Money Smart Week, and provided financial literacy education and support among local small businesses and entrepreneurs. Her educational background includes a B.A. in English Literature and Middle/Secondary Education from Butler University; M.A. in English Literature from Loyola University of Chicago; M.S. in Library and Information Studies from the University of Alabama—Tuscaloosa; and a Ph.D. in Library and Information Studies from Dominican University.

Free ticketed event

U427 - SUNDAY WORKSHOP: Puzzle Hunt and "How to Write Effective Puzzles"

1:00 P.M. - 3:30 P.M., E148, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Speaker: Dr. Robert Schaffer, Mission College

Research suggests that gamification can enhance learning outcomes and keep students engaged. Engineering students generally enjoy challenges and solving puzzles. In this workshop, participants will work in teams to solve escape-room like puzzles designed specifically for first-year Engineering classrooms. While an enjoyable way to start one's week at ASEE may be reason alone, the instructional benefit is two-fold as participants will (1) obtain the materials needed to use these puzzles (or variants of their choosing) in one's own courses and (2) learn mechanisms to consider when creating puzzles. Each puzzle will involve a fun and memorable way to reinforce or teach a concept. The workshop will also cover how to write a puzzle for a classroom environment and some various techniques and approaches to consider.

Free ticketed event

U427B - SUNDAY WORKSHOP: Coding without Tears: The Art and Craft of Teaching Computational Thinking

1:00 P.M. - 3:30 P.M., A109, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Speakers: Dr. Noemi V Mendoza Diaz, Texas A&M University; Dr. Deborah Anne Trytten, University of Oklahoma; Dr. Russell D. Meier, Milwaukee School of Engineering; Dr. So Yoon Yoon, University of Cincinnati; Dr. Harry A. Hogan, Texas A&M University

Computational thinking is a crucial skill that is growing in importance for future engineers. As engineered devices incorporate more computational components, there is growing demand for engineers who can design these components. In addition, the power of computation is radically altering what is and is not achievable in engineering, especially given the recent resurgence of artificial intelligence. Some engineering programs have responded by integrating computational thinking into introductory engineering courses for first-year students. These courses serve as the foundation of engineering education and can be gatekeepers for students to determine whether they pursue engineering as a career. Integrating computational thinking into introductory engineering courses without losing future engineers is a critical challenge in engineering education. This is especially significant because computer programming and computational thinking are areas of great inequality, with some secondary schools offering multi-layered programs for developing these skills while others have none.

Our collaborative multi-institutional research team has spent four years designing, implementing, deploying, and validating an engineering computational thinking diagnostic (ECTD). This instrument measures pre-post performance on questions that indicate student ability in the areas of abstraction, decomposition, algorithmic thinking, data representation, and the social context of computing. Instructors at higher education can use the ECTD as the diagnostic to assess entry-level skills that enable timely interventions, such as additional learning modules, learning cohorts, supplemental assistance, and guided aids. Pre-post applications of the ECTD can help educational programs evaluate the effectiveness of a course in achieving the development of computational thinking skills so that continuous improvement can be implemented for students.

The purpose of this workshop is to introduce and encourage use of the engineering computational thinking diagnostic (ECTD), discuss current and potential uses of this tool, and explore the broader impact that the tool can enable in the scholarship of research and scholarship of teaching of our participants.

Free ticketed event

U433 - SUNDAY WORKSHOP: Spatial Vis™: Sketching as a First Step to Student Engagement in Engineering

1:00 P.M. - 3:30 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Speakers: Dr. Lelli Van Den Einde, eGrove Education; Dr. Nathan Delson, eGrove Education

Spatial visualization (i.e., thinking in 3D), is an essential skill for engineering students. Learning to freehand-sketch orthographics and isometrics increases spatial skills and performance in many engineering subjects. Sketching skills also aid concept generation and sharing technical ideas with teammates. The Spatial Vis™ software makes it more engaging for students to learn and easier to teach technical sketching. Students sketch on a computer, tablet, or smartphone, and their sketches are graded automatically. If a student makes a mistake they receive a small hint and are encouraged to try again, thereby gaining points for persistence.

This workshop is ideal for middle school, high school, higher education, Introduction to Engineering, Engineering Design, Drafting, and CAD instructors. We will review the data on the benefits of freehand-sketch training, which have been shown to be especially advantageous to women and other marginalized groups.

Participants will then have an opportunity to use Spatial Vis™, and we will discuss best practices for implementation in the classroom. Additionally, the presenters will discuss how to incorporate sketching into design-build projects, and they will provide access to projects they have done in their Introduction to Engineering Design classrooms.

All participants will receive a free account to use Spatial Vis™ and are encouraged to bring a laptop, tablet, or smartphone to the workshop.

Free ticketed event

U441 - SUNDAY WORKSHOP: Breaking Boundaries: Unveiling the Wonders of Human Anatomy for Engineers and Computer Scientists

1:00 P.M. - 3:30 P.M., A107, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Speakers: Dr. Lakshmi N. Reddi P.E., New Mexico State University; Akanksha Varma Sagi, New Mexico State University

Our purpose is to transcend disciplinary boundaries to show biological wonders that have yet to be matched by the technological innovations of our time. In this workshop, four research experts will cover major human anatomical wonders and their parallels in engineering technology: "Skin sensors" with auto-thermoregulatory responses holding clues for indoor environment; "Cerebrospinal System" with data orchestration shaming the current computer architectures, "Respiratory System" begging for efficiencies in our current HVAC and automobile systems; and "Immune System" with its superior defense system relative to our cybersecurity. The parallels will be systematically analyzed in terms of four parameters: i) Sustainability, ii) Resilience, iii) Energy Efficiency, and iv) Adaptability.

This is not a workshop on Biomimetics. It dwells exclusively on the four important elements of human anatomy to expose biological characteristics in terms of engineering function and design. The workshop will use an entertaining mode of answering the following questions:

1. How does skin use the internal energy to keep the blood core temperature at exactly the same level regardless of the ambient temperatures? What clues does the skin have for air-conditioning systems for indoor environment?

2. How do dendritic cells in the brain process our thoughts and contribute to memory storage? What clues do these cells and the spinal system have for an adaptable and resilient computer architecture?

3. How do lungs filter the inhaled gases and exchange them with blood with phenomenal energy efficiencies? How do our HVAC and automobile systems lag behind these wonderful organs?

4. How does our body defend itself, or fail to in some cases,

against viral infections? In spite of the various pathways for external agents to enter into the system, how did our defense mechanism manage to have layers of defense? What clues does immunology have to enhance our cybersecurity initiatives?

The workshop will conclude with a new cultural and societal paradigm that is needed to respect the evolution of human anatomy, just as ancient cultures did, and learn from it functioning and design.

Free ticketed event

U441B - SUNDAY WORKSHOP: MATLAB Controls Workshop

1:00 P.M. - 3:30 P.M., E142, OREGON 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

The first session will be given by MathWorks personnel and show participants the basics of how to take advantage of MATLAB's wide variety of functions when teaching Control Theory and related topics. Participants will get hands on experience building and running simulations on their own laptop computers. All Code examples and other materials will be provided to that attendees. Participants will be guided through a subset of the large volume of controls related materials available in MATLAB.

The second session will focus on interfacing MATLAB with hardware. In particular using the Arduino interface to sense and control various devices. A standard Arduino kit (Like the ELEGOO UNO Project Super Starter Kit) 1 will be provided to the participants. At the end of the workshop participants will be allowed to take the kit home with them. The workshop will give participant experience interacting with the Arduino for sensing and control. 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 the device with the knowledge they have mastered. The second session will include some hands-on simulation of typical control systems.

MATLAB control functions seminar (Session 1)

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

MATLAB Arduino sensing and control seminar (Session 2 work in pairs or triplets)

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

The workshop doesn't require prior knowledge of MATLAB or Arduino programming, but some knowledge of these two technologies will benefit anyone taking the workshop.

Sources: https://www.amazon.com/ELEGOO-Project-Tutorial-Controller-Projects/dp/B01D8KOZF4/ref=sr_1_4?crid=NM1OPOLGURGC&keywords=Arduino+kits+sensor+motors&qid=1660442844&s=electronics&sprefix=arduino+kits+sensor+motors%2Celectronics%2C114&sr=1-4

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

U442 - SUNDAY WORKSHOP: Learning Experiences for All: Using Universal Design for Learning to Reimagine and Craft New Learning Experiences

1:00 P.M. - 3:30 P.M., E141, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Speakers: Dr. Adam R. Carberry, The Ohio State University; Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus; Ms. Rachel Figard, Arizona State University; Mr. Marcus Melo de Lyra, The Ohio State University

Engineering Education has continually called for implementing inclusive and diverse teaching practices to invite and accommodate the needs of a plurality of learners. One way to respond to this call is through the use of Universal Design for Learning (UDL). UDL is a framework created to guide educators in designing learning experiences in an accessible and engaging way. The principles of UDL focus on reducing barriers and rethinking the learning environment rather than forcing the learner into a single learning model. This workshop invites current and aspiring engineering educators to collaboratively learn more about UDL through a series of interactive activities. Participants will leave with knowledge of how to (1) identify accessibility improvement areas in their current or future courses and (2) understand how UDL can be leveraged to improve these areas.

Free ticketed event

U442B - SUNDAY WORKSHOP: Funding for New Engineering Education Researchers: Applying to the NSF RIEF Program

1:00 P.M. - 3:30 P.M., D139, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderators: Sagnik Nath, University of California, Santa Cruz; Sanaz Motamedi, University of Florida

Speakers: Dr. Julie P. Martin, University of Georgia; Dr. Sindia M. Rivera-Jiménez, University of Florida; Dr. Karin Jensen, University of Michigan; Sagnik Nath, University of California, Santa Cruz; Ms. Sanaz Motamedi, University of Florida

The National Science Foundation (NSF) Professional Formation of Engineers Research Initiation in Engineering Formation (PFE: RIEF) funding opportunity provides an excellent opportunity for engineering faculty members with little to no experience in engineering education research to work with an experienced mentor on a funded project (two years, up to $200,000). The workshop's highly interactive structure consisting of mini-presentations and activities is combined with tangible resources for prospective PIs.

Participants will: 1. Review the RIEF solicitation and understand criteria specific for the solicitation; 2. Identify and discuss strengths of funded RIEF proposals; 3. Identify resources for developing project budget and writing an effective PI mentoring plan; and 4. Develop strategies to find potential mentors.

The workshop is facilitated by an experienced team consisting of Julie P. Martin (former NSF program director for RIEF and RIEF mentor), Karin Jensen (former RIEF mentee and current RIEF mentor), and Sindia Rivera Jimenez (former RIEF mentee).

Free ticketed event

U457A - SUNDAY WORKSHOP: A Workshop for Faculty Developers: An Accessible Process for Helping STEM Faculty Scope and Design Educational Research and SOTL!

1:00 P.M. - 3:30 P.M., F149, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: John Morelock, University of Georgia

Speakers: Dr. Azadeh Bolhari P.E., University of Colorado Boulder; Dr. Heather Chenette, Rose-Hulman Institute of Technology; Dr. Michelle E. Jarvie-Eggart P.E., Michigan Technological University; Dr. Kirsten Heikkinen Dodson, Lipscomb University; Dr. Rebecca Marie Reck, University of Illinois at Urbana - Champaign; Dr. Sarah A. Wilson, University of Kentucky; Dr. John Ray Morelock, University of Georgia; Dr. Kenya Crosson, University of Dayton; Dr. Kalynda Chivon Smith, North Carolina A&T State University; Melissa Srougi, North Carolina State University

Background - The ProQual approach. The premise of the ProQual approach is that training faculty on how to conduct

high-quality qualitative research should begin not with an overview of approaches, theories, and methods. Rather, it should begin by helping participants flesh out the social system that interests them, and then to define which specific parts of that social system they want to investigate. We call this approach a "methodologically unencumbered" introduction to educational research, intending to arrive at a "social reality under investigation" (SRUI): A tightly scoped segment of a larger social system that is the focus of research. Drafting a properly scoped SRUI is the most critical first step in research design, and the research questions and other decisions involved in the design of educational research flow more easily from there.

The primary mechanism in the ProQual Approach for fleshing out a social system and defining a SRUI is called a pictorial systems map. To create a pictorial systems map, STEM faculty first identify a topic of interest (e.g., "the mental health of undergraduate engineering students at X university"), and sketch out as many things as possible that might play a role in that topic of interest (continuing the example, "what factors might affect engineering student mental health?") To help faculty develop comprehensive maps, we group potential elements of pictorial systems maps into six categories, coupled with three considerations for the map as a whole.

Categories:

1. People (e.g., students, faculty, friends, family, co-workers)

2. Artifacts (e.g., assignments, publications, documents, possessions)

3. Educational practices (e.g., lectures, course activities, flipped classrooms, online learning)

4. Locations (e.g., classroom, campus, living quarters, hometown)

5. Structures (e.g., campus climate, academic policies, availability of student services)

6. Interactions (between people, policies, institutions, etc.)

Considerations:

1. Connections (How do the elements above interact with each other?)

2. Timeline (What are the time bounds of the social system being drawn?)

3. Granularity (How far do you want to "zoom in" on each part of the social system?)

Drafting a pictorial systems map has several benefits for the educational research process. First, it allows STEM faculty to get a "big picture" view of something they want to better understand, often revealing factors and interactions they did not previously consider. Second, it allows them to create an initial research design "product" (the map itself) without the need for extensive knowledge of educational research methods and theories. The creation of this product helps them build confidence in the initial steps of research design, and also results in an artifact they can use to communicate their social system of interest and research idea to others. Sharing the pictorial systems map with others is often a productive way to gain new perspectives on one's research approach, and the workshop will dedicate time to doing so.

Workshop Content and Format:

This 2.5-hour workshop will focus on the methodologically unencumbered first four steps of the ProQual approach, allowing participants to experience the process first-hand, and then helping them understand how to leverage it in faculty development contexts. Participants will be asked to come into the workshop having filled out a worksheet (provided by workshop leaders) to write about something they (or a faculty member they work with) are intellectually curious to study in an educational context. We will bring a few pre-written backup scenarios participants can use if they do not fill out the worksheet prior. For the first third of the workshop, the leaders will introduce themselves and the ProQual approach. During the second third, they will use small group activities to help participants develop their interest statements into pictorial systems maps, and refine those systems maps to draft research questions. For the last third of the workshop, the leaders will discuss their experiences using the ProQual Approach to help faculty develop research ideas. The leaders will then break out into "conver-stations", where each leader hosts a different table, and participants are free to select a leader to interact with, ask questions to, and discuss next steps in bringing the ProQual Approach back to their institutions to support their faculty development work.

Learning Objectives:

Upon leaving the workshop, participants will be able to:

1. Help faculty turn intellectual curiosity into a pictorial systems map to identify potentially

impactful areas of research in their social realities of interest.

2. Help faculty refine and scope their pictorial systems maps to translate their intellectual curiosity into actionable research questions.

3. Connect with an existing community of STEM faculty conducting educational research using the ProQual approach, and with other participants who work with STEM faculty to develop educational research and SOTL projects.

Proposed activities:

1. Introduce the ProQual Institute and workshop leaders - 10 mins

2. Participant introductions - 15 mins

3. Introduce interpretive research and ProQual approach to research design - 20 mins

4. Pictorial systems mapping demo - 15 mins

5. Activity: Collaboratively mapping your social realities - 35 mins

6. Activity: Selecting a SRUI and drafting a research question - 10 mins

7. Break - 10 mins

8. Using the ProQual Approach in faculty development contexts - 10 mins

9. Workshop leader "conver-stations" - participants pick a leader to engage with and discuss their systems, maps, ideas, and next steps - 25 mins

10. Invitation to engage with the ProQual community to support moving your research and faculty development efforts forward - 5 mins

Free ticketed event

U457B - SUNDAY WORKSHOP: Tools for Addressing Mental Wellness in the Classroom

1:00 P.M. - 3:30 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Speaker: Dr. Whitney C. Blackburn-Lynch P.E., University of Kentucky

This workshop is designed to use various active learning techniques to introduce faculty, advisors, and administrators to Martin Seligman's model of positive psychology, provide them tools with which they can begin the discussion, and give them practice using the tools.

Seligman and others have identified five (5) things that aid in success, Positive Emotions, Engagement, Positive Relationships, Meaning, and Achievement (PERMA). These are all attributes that we can introduce in meaningful ways in an engineering class, that aids students in developing tools for success, and provides a distinct boundary where tools are provided, but we do not have to be counselors. Students can be directed to protect their mental wellness, provided tools to support themselves, and then shown how to find resources if they need further help.

Format:

This will be an interactive session where we will talk about the PERMA model for success, determine best practices for introducing PERMA topics in the classroom, and practice using interactive tools to help students engage with each of the five (5) PERMA components.

Learning Goals:

The learning goals for this workshop are:

1. Introduce and discuss Martin Seligman's PERMA model of positive psychology

2. Develop a language for talking about student mental wellness that is individual, engaging, and value centered.

3. Practice with tools to engage students in raising their awareness of their mental wellness.

4. Identify areas in the curriculum where tools can be included for student use and discussion.

Tentative Schedule for Workshop:

10 minutes—Settling in and Introductions

- "How are you feeling" activity
- Engaging Question
- Introduction of the presenter

10 minutes—Introduction to the PERMA model

- Quick overview of Seligman's work
- Some information about successful implementation in seminars as "The Science of Happiness"

40 minutes—Positive Emotions

- What are positive emotions
- Why are they important
- Tools for creating positive emotions in the classroom

• Practice with positive affect

5 minute—Stretch Break and Check-in

45 minutes—Engagement

• Identifying core values—activity

• Engaging with our content

• How some of our presentations can create disconnection because of stereotype threat

• Tools for addressing stereotype threat and growth mindset to regain the engagement

• Practice with talking about stereotype threat and growth mindset

10 minutes—Stretch Break and Check-in

30 minutes—Positive Relationships

• Defining positive relationships

• The value of good communication

• Tools for practicing communication

• Practice good communication-role playing

30 minutes—Meaning

• Defining meaning and purpose

• Helping students identify their meaning

• Tools for helping students identify their purpose

• Find your why—activity

5 minutes—Stretch Break and Check-in

30 minutes—Accomplishment

• Talking about motivation

• Thinking about setting goals

• Tools for helping students set realistic goals and gain a sense of accomplishment

• Set your goal—activity

20 minutes—Final Questions

5 minutes—Final Check-ins

Activities:

Throughout the workshop there will be a number of activities as outlined in the schedule above. In addition there will be:

1. Mentimeter check-ins and questions

2. 2-minute think-pair-share

3. Other opportunities to share

Free ticketed event

U457C - SUNDAY WORKSHOP: Project Development Canvas (PDC) Interactive Workshop

1:00 P.M. - 3:30 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Speakers: Ms. Krystal Corbett Cruse, Louisiana Tech University; Mr. Casey Kidd, Louisiana Tech University

The workshop will present the various stages of the PDC framework, intermixed with meaningful discussions and activities that will showcase the multiple stages of the process and further reinforce the benefits of the PDC.

The four main goals of the workshop are:

1. Introduce the PDC and guide the attendees through each stage of the framework;

2. Discuss the barriers to project implementation and identify how the PDC may help overcome them;

3. Assist the attendees in developing a preliminary plan that addresses each stage of the PDC for a project in one of their courses;

4. Build a collaborative network among workshop facilitators and attendees;

The PDC is comprised of nine separate "blocks": each block detailing a different stage of the development process. Some blocks require a short explanation, but the blocks that include the physical activities involved in the development process will be reinforced in the workshop through interactive discussions, demonstrations, and engaging activities. Following the workshop, attendees will gain access to digital versions of the workshop materials along with additional project development resources.

The two-and-a-half-hour session will be broken into three main sections:

Introduction (45 minutes)

• Introduce the presenters and explain our qualifications for this workshop

• Highlight barriers to integration of projects in the classroom

• High-level introduction of the PDC

• Example of the range of possible projects

• Participant feedback on what kind of projects they may want to implement as well as their available resources

Project Development Canvas (1 hour, 15 minutes)

• Explain each of the nine blocks of the PDC, including discussion and activities where appropriate

Conclusion (30 minutes)

• Review of the PDC contents and benefits

• Highlight post-workshop resources we will make available

Free ticketed event

U457D - SUNDAY WORKSHOP: Developing Workshops on Educational Uses of AI in Engineering Classrooms

1:00 P.M. - 3:30 P.M., B117, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Michelle Soledad, Virginia Polytechnic Institute and State University

Speakers: Ms. Yaoling Wang, University of Nebraska - Lincoln; Markeya Peteranetz; Amie Sueann Sommers; Dr. Tareq Daher, University of Nebraska - Lincoln; Dr. Michelle Soledad, Virginia Polytechnic Institute and State University

As AI-infused tools increase in popularity, it is important to understand their impact on engineering classrooms. Join faculty developers in engineering as we discuss how to create workshops for your stakeholders on how AI tools integrate into instruction and student's learning experiences. In this workshop we provide guidance for faculty developers on how to introduce AI tools such as ChatGPT and others on the rise. This workshop guides participants on what opportunities exist for developing training on student engagement, integration of AI in instructional practices, and discusses limitations of the most common AI tools. The workshop ends with insights into AI's diversity, equity, and inclusivity implications and how to train others to work within those parameters.

Format:

The workshop will be covering 3 primary areas. For each of these areas, participants will have individual work time to reflect about areas of development for their stakeholders and small group collaboration time to share their ideas and receive feedback. At the end of the workshop, facilitators will build in opportunities for large group discussion and sharing of best practices.

1. Introduction to AI tools that are on the rise with specific examples on how these tools might be used for educational purposes

2. Integrating common AI tools into instruction, assessments, and student learning

3. A discussion around AI's diversity, equity and inclusivity implications and how you can develop a workshop for your stakeholders to think through these implications as they use AI tools in their classrooms

Schedule of Activities and Content:

1. Introduction to AI Tools in Engineering Education, 25-30 mins (Breakdown: 15 mins intro/presentation; 5 mins individual thinking/reflection; 10 mins for small group discussion)

2. AI tools for instructional use and student engagement activities, 25-35 mins (Breakdown: 15 mins intro/presentation; 10 mins individual thinking/reflection; 10 mins for small group discussion)

3. AI's diversity, equity, and inclusivity implications, 25-35 mins (Breakdown: 15 mins intro/presentation; 10 mins individual thinking/reflection; 10 mins for small group discussion)

4. Conclusion and large group discussion, 10-20 mins (5 mins best practices discussion, 15 mins for large group discussions)

Deliverables:

1. 2-hour workshop, including materials (electronically hosted) that participants can use beyond the workshop

2. A handout containing key resources (links to tools, descriptions, key articles)

3. Examples of activities for immediate application

4. Checklist of best practices

By the end of this workshop, participants will be able to:

1. Explore various upcoming AI tools being used for content development and gain insights on methods to train instructors on the use of these tools

2. Learn instructional practices on how AI can be used in engineering classrooms

3. Discuss opportunities for student engagement with ChatGPT in the engineering classroom

4. Gain insights into AI's diversity, equity and inclusivity implications

This workshop will be held by members of the Engineering and Computing Education Core (ECEC), at the College of Engineering at the University of Nebraska-Lincoln.

Ticketed event: Developing Workshops - $12.95 advanced registration and $12.95 on site registration

U495A - SUNDAY WORKSHOP: Personalized Education Using the Engineering Design Process

1:00 P.M. - 3:30 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

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

Dive into the world of personalized education in this workshop, exploring how to tailor learning experiences to meet the unique needs of each student. Using the engineering design process, you will learn to apply systematic, creative approaches to develop educational strategies and materials that are both innovative and effective. This interactive session will provide you with the tools and knowledge to integrate technology effectively, design adaptable learning resources, and foster an environment where every learner can thrive.

You will collaborate with peers to tackle real-world challenges in education, using problem-solving skills and design thinking to create solutions that are as unique as your students. This workshop will empower you to enhance and maybe even transform your educational approach, making learning more engaging, efficient, and impactful.

Join us for an enriching experience that blends the precision of engineering with the art of education. Whether you are looking to enhance your teaching methods or develop new educational tools, this workshop is your gateway to unlocking the full potential of personalized learning. It is designed for educators, instructional designers, and anyone in the K-16 field passionate about revolutionizing the way we learn.

Free ticketed event

U495AA - SUNDAY WORKSHOP: Engineering Stories That Turn Heads: Grabbing and Keeping an Audience's Attention

1:00 P.M. - 3:30 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Mr. Chris Bender, University of Maryland, College Park

Our workshop will cover two main themes:

—Strategic versus tactical storytelling and the importance of linking stories to a larger goal (e.g. not working on a media placement for its own sake but because it's driving a larger agenda).

—Practical and affordable tips and tricks for improving editorial and multimedia storytelling, including an understanding of how audiences consume data and best practices from other industries.

Free ticketed event

U495AB - SUNDAY WORKSHOP: The Rising Doctoral Institute: Designing a Workshop to Support Doctoral Students' Success in the Engineering Ph.D.

1:00 P.M. - 3:30 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Mayra S. Artiles, Arizona State University; Dr. Stephanie G. Adams, University of Texas at Dallas; Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University; Dr. Juan M. Cruz, Rowan University

Studies on graduate education have shown that underrepresented minorities (URM) finish Ph.D.s in engineering at lesser rates and longer timeframes than their majority peers. Research has also shown that it is the transition into the Ph.D. that shows key promise in helping students tackle the challenges germane to this degree.

To prepare URM doctoral students for this transition to the Ph.D., we developed the Rising Doctoral Institute (RDI). The RDI is an NSF-funded project to partner with colleges of engineering and computer science to create workshops directed to incoming doctoral students who identify as underrepresented in engineering. The workshops are intended to be held just before students start their graduate programs and into that first Fall semester. This workshop structure was designed and grounded in research on doctoral student development and has been tested across multiple institutional contexts for replicability.

Free ticketed event

U495B - SUNDAY WORKSHOP: Mechanism Design Made Easy and Accessible

1:00 P.M. - 3:30 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Dr. Anurag Purwar, Stony Brook University

The task of designing mechanisms for machinery and robotics has historically presented a formidable challenge, both to students and industry professionals. Curiously, a substantial proportion of innovative mechanisms have been conceived by artists rather than scientists, despite the formalization of mechanism design and simulation theory and computation by engineers and scientists. This workshop will demonstrate how the motion generation, involving the determination of N positions, and the path synthesis problems can be effectively addressed using this tool.

Anticipated Participants: This workshop is targeted towards academic professionals instructing courses in engineering design, kinematics, robotics, and mechatronics, as well as undergraduate and graduate students and industry practitioners with an interest in these fields.

Ticketed event: Mechanism Design - $20.00 advanced registration and $30.00 on site registration

U495D - SUNDAY WORKSHOP: Gamifying Engineering Education - A Playful Approach to Ethics Instruction and Assessment

1:00 P.M. - 3:30 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Scott Streiner, University of Pittsburgh; Dr. Daniel D. Burkey, University of Connecticut; Dr. Kevin D. Dahm, Rowan University; Dr. Richard Tyler Cimino, New Jersey Institute of Technology; Tori Wagner, University of Connecticut

Ethics education has been recognized as increasingly important to engineering over the past two decades, although disagreement exists concerning how ethics can and should be taught in the classroom. With the support from the National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE) program, a collaboration of investigators from the University of Connecticut, New Jersey Institute of Technology, University of Pittsburgh, and Rowan University are conducting a mixed-methods project investigating how game-based or playful learning with strongly situated components can influence first-year engineering students' ethical knowledge, awareness, and decision-making.

The popularity and prevalence of game-based or "playful" learning strategies has grown significantly over the past two decades, finding applications in a diverse range of educational contexts. Playful learning offers unique affordances for the practical assessment of ethics-learning outcomes. Current ethical assessments often place undue emphasis on the categorization of knowledge and skills, while not sufficiently addressing the process through which students navigate and act on ethical dilemmas. This, we posit, is an area that needs redefining, given that ethical decision-making is rarely a linear process with single objective "right" answers and often involves iterative reasoning and interactive engagement with the problem. As such, we have developed a suite of ethics-driven classroom games that have been implemented and evaluated across three universities, engaging over 400 first-year engineering students over the past 3 years.

Our work is based on the logic that game-based learning can provide a means to engage students actively in interrogating the complexities of ethical decision-making in specific engineering scenarios. Gameplay can align with engineering course learning objectives as well as enhance

student knowledge, behaviors, and dispositions as students reflect on their own decision-making and that of their peers. This workshop will provide an overview of three games that we designed as part of an NSF-funded project investigating the impacts of game play on ethical reasoning and decision making, highlighting the concepts that guided our approach to innovative engineering ethics instruction. Each game targets specific ethics-learning outcomes such as: Identifying the complexities of ethical dilemmas, evaluating responses to ethical situations in context, and promoting ethical discussions among peers on potentially controversial situations from real-life engineering disasters.

In this workshop, we will provide an overview of all three games, how they can be implemented in both remote and in-person classroom settings, and how to gain access to the materials (and instructional guides). We will also share research findings from the last four years on the benefits of a playful learning approach to ethics instruction and the frameworks that guided the game design. More details about the NSF grant, the research team, and the games can be found at https://www.engineering.pitt.edu/engineering-ethics/.

Free ticketed event

U495E - SUNDAY WORKSHOP: Fostering Cross-Collaboration in Education and Industry

1:00 P.M. - 3:30 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Janelle Simmonds; Shannon O'Donnell, Siemens Digital Industries Software

In an increasingly interconnected and fast-changing world, collaboration between academia and industry is an even more vital ingredient for driving innovation, addressing complex challenges and enhancing educational experiences that prepare the future workforce with necessary skills. This workshop seeks to equip engineering educators, administrators, and industry representatives with the tools and strategies needed to cultivate a culture of collaboration within and across their respective domains. Presented by Shannon O'Donnell, global academic engagement lead for Siemens, and Janelle Simmonds, global academic enablement lead for Siemens, this workshop promises to empower participants with actionable techniques to encourage collaborative solutions and foster meaningful academic-industry partnerships.

Free ticketed event

U495F - SUNDAY WORKSHOP: Enhancing Learning with ePortfolios and Reflective Practices

1:00 P.M. - 3:30 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Rebecca Thomas, Bucknell University; Dr. Stu Thompson, Bucknell University; Dr. Stewart Thomas, Bucknell University; Dr. Alan Cheville, Bucknell University

Reflection is a necessary but often underemphasized part of the learning process that warrants more attention. Recognized as a high impact learning practice by AAC&U, ePortfolios are an effective strategy to structure, encourage and archive student reflection. ePortfolios also encourage integration of often disparate aspects of the student experience including courses and co-curricular endeavors and may help students better organize and transfer knowledge. In addition to supporting the learning process, reflection and ePortfolios expose aspects of student experiences and learning often invisible with conventional assignments but which are key in understanding individual students and their unique context.

In this workshop, we introduce ePortfolios with a purposeful emphasis on reflection to support learning and elicit student narratives in engineering courses. We will provide an overview of reflection and ePortfolios and discuss example prompts and student responses to them. Drawing on our experience, we will share practical insights and lessons learned from successfully integrating ePortfolios into multiple courses. We will also share our research findings, which provide evidence that students are able to transfer reflective thinking across courses following a single ePortfolio activity. Participants will understand the features of electronic portfolios, explore different types of reflection and consider how each aligns with their learning goals, analyze ePortfolio prompts and example student responses, and learn to create targeted reflection prompts that span multiple levels of reflection.

This work is funded by the National Science Foundation under EEC-2022271.

Free ticketed event

U495H - SUNDAY WORKSHOP: CAD Analytics for Responsive Teaching and Education Research

1:00 P.M. - 3:30 P.M., A108, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Matthew Mueller, PTC; Matthew Shields, PTC; Elizabeth DaMaren, University of Toronto

This hands-on workshop will introduce attendees to the features of cloud-native CAD that allow educators and students to collaborate and learn in new ways, and how those same features enable companies to use agile methodologies when developing products.

Whether you've used Onshape for years or you have never touched CAD, this session will provide opportunities to learn, collaborate, and share. Following a brief introduction, participants will be provided with starter models and given the opportunity to complete small design challenges with the support of the facilitators. We will then show the types of data generated throughout the workshop and demonstrate how it might be used by educators for responsive teaching or understanding student learning.

The workshop will conclude with demonstrations of how Onshape's cloud-native architecture is changing the CAD industry and how you can prepare your students for the future of product development.

Free ticketed event

U495I - SUNDAY WORKSHOP: Revolutionizing an Engineering Department by Changing its Culture

1:00 P.M. - 3:30 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Dr. Teodora Rutar Shuman, Seattle University

During this workshop, participants will learn strategies for implementing major changes in their departments, teams, and other groups. We will highlight some of the revolutionizing changes realized by our NSF RED project and then we will lead attendees to explore how what we learned might be adapted to their own institutional contexts.

The key takeaways of this workshop that may be easily implementable by other programs include the following:

1. Shared Vision: Attendees will learn how to work together to update the department mission and how to sustain the shared vision through "Teaming" exercises.

2. Reflective Faculty: Attendees will learn to put care for students in the forefront of their department's goals through myriad actions such as DEI training, using advising checklist, adding supportive syllabus statements, and engaging practicing engineers in professional and technical mentoring.

3. Curriculum: Attendees will learn how to include all faculty and how to use students' voices to minimize conflict and reach consensus when revising a curriculum.

4. Policy: Attendees will learn how to use annual performance reviews and tenure & promotion to recognize the hidden work (caring for students, innovative pedagogy, service to department, etc.)

Culture change does not need to be more work, but it may be different, more fulfilling work, more inspiring work. It is our hope that this workshop will provide a few sparks that ignite the culture change of academia.

Free ticketed event

U495J - SUNDAY WORKSHOP: Ethics Everywhere! Co-creating Meaningful Ethics Assignments across Engineering Curriculum

1:00 P.M. - 3:30 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Cameron Kim, Duke University; Dr. Elizabeth Kathleen Bucholz, Duke University; Dr. Ann Saterbak, Duke University; Christian Ferney, Duke University

Connecting technical knowledge with ethical inquiry in engineering coursework fosters deeper engagement with course content and critical reflection on technical challenges, yet this approach is often overlooked in engineering classes. Questions regarding ethics in engineering may appear in first-year programs or in capstone as "one-and-done" lessons, but ethical considerations should be broadly integrated across the curriculum. This integration helps students see

the essential relationships between the technical content of engineering and the tough decisions that they will inevitably make as professionals. We believe that an iterative "ethics everywhere" approach to engineering education supports students in their development. Careful sequencing and integration of ethical considerations across the curriculum allows students to become good engineers: both technically proficient and ready to exercise sound judgment in the real world, underscoring the relevance of ethics across many fields, including design.

At Duke University, we have developed modules for students to identify ethical dilemmas, apply design principles for diverse stakeholders, and incorporate value and virtue in and beyond the classroom. In collaboration, educators in the disciplines of engineering and ethics have prepared student outcomes related to ethics that build across the four undergraduate years. We also developed specific learning outcomes that are accessible to broader engineering faculty to connect technical content with ethical inquiry.

In this workshop, we will provide background on the importance of ethics education in engineering with a focus on tangible and effective strategies to incorporate modules in multiple courses. We will share our process of collaborating with ethics experts and how to strategize with colleagues at your university to more broadly teach ethics. We will present examples of exercises, assessments, and conversations that integrate our proposed hierarchical ethical student outcomes. Participants will join in active conversations with colleagues in related fields/courses to assess the current state of ethics training in their departments; what skills and mindsets with ethical inquiry lead to success; and what concerns they have in implementing ethics modules in the classroom. This workshop is intended for faculty who have an interest in integrating themes of ethics within technical engineering classes, or even have starting ideas, but would like to develop a more complete lesson plan with the assistance of their peer community. By the end of this workshop, attendees should have concrete ideas for exercises and modules that can be integrated into their courses and departments to train the next generation of ethical engineers.

Free ticketed event

U495K - SUNDAY WORKSHOP: Engineering for One Planet: Choose Your Own Hands-On Curricular Adventure

1:00 P.M. - 3:30 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Cynthia D. Anderson; Ms. Allison Wolf; Dr. Medha Dalal, Arizona State University; Archana Shashidhar Mysore, Arizona State University

Introduction to Engineering for One Planet (EOP):

The Engineering for One Planet (EOP) initiative seeks to transform engineering education to reflect the growing importance of sustainability in all engineering functions. Catalyzed by The Lemelson Foundation and VentureWell — in collaboration with hundreds of stakeholders across sectors, geographies, and lived experiences — EOP is working to ensure all future engineers will learn the fundamental skills and principles of social and environmental sustainability. The EOP Framework is a vetted menu of essential sustainability- and leadership-focused learning outcomes across nine topic areas that have been identified as necessary for preparing all graduating engineers (regardless of sub-discipline) with the skills, knowledge, understanding, and mindsets to protect and improve our planet and our lives. Currently, there are three EOP Framework companion "how to" teaching guides to support sustainability-focused content integration into engineering courses and programs. All EOP resources are available online and at no cost.

Workshop Description:

In this interactive workshop facilitated by experts in engineering education and active learning, participants will be introduced to and review the EOP Framework and companion teaching guides, as well as curricular examples of how the EOP Framework was used to create active and PBL teaching materials for engineering courses at Arizona State University (ASU). Participants will then be given a choice of hands-on activities that will lead to the creation of active learning activities that will later be compiled into a new EOP companion teaching guide for publication on the EOP website with attribution to all workshop participants.

Workshop flow:

Gallery Walk (10 min)

-ASU EOP Fellows share physical examples of active learning

teaching materials

Introduction to EOP Resources: EOP Framework and Companion Teaching Guides (40)

Introduction to EOP Resources

-Review the EOP Framework using a guided active learning activity

OR

-Identify the implementation of EOP topic areas in engineering courses and discuss content modifications using the EOP Evaluation Tool

-Review three EOP Framework companion teaching guides

BREAK (15 mins)

Choose Your Own Curricular Adventure: EOP Active Learning Teaching Materials Creation (85 mins)

-Demonstration of an active learning curricular example utilizing the EOP Framework

-Team-based creation of active learning activities by implementing learning outcomes from the EOP Framework

-Share out from teams

Free ticketed event

U495M - SUNDAY WORKSHOP: Finding and Developing True Personal Stories in STEM

1:00 P.M. - 3:30 P.M., C125, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Krishna Pakala, Boise State University; Eric Jankowski, Boise State University; Anne Hamby; Dr. Sara Hagenah; Brooke Ward, Boise State University

Attendees will learn about the craft of storytelling and the significance of narratives and how to identify aspects of their personal journey to create stories related to science. Engaging in both individual and group activities, participants will work on developing distinct "events," "consequences," and "characters," and will ultimately leave with at least one potential story idea. The workshop will provide guidance on effective beginnings and endings for live stories, and participants will have the chance to share their stories and story pitches with others, time permitting.

This workshop combines elements of the personal storytelling curricula we deploy in undergraduate engineering classrooms, a targeted review of the science of storytelling in engineering contexts, and discussions of how storytelling activities can be deployed in other contexts. The overall structure of the workshop is as follows:

The Story Collider – Intro, Expectations, Norms

– Events: Activities focused on finding pivotal moments writers can structure stories around. We will workshop a story draft around one of these ideas today.

– Consequences: What are the stakes in your story, and how can we share them in a way that your audience will care as much as you did?

– Characters: Who is science, and who were you at the time of your story?

– Break

Putting it together

– Narrative arc: How can we think about the flow of a story from beginning to end, and how can we use this to structure our stories?

– Narrative breakouts: Story pitches

– Launchings and landings: What are best practices for starting and finishing stories?

– Characters: We revisit your character in the context of your event.

– Break

Results from Boise State University

– Research context

– Quantitative findings

– Interviews and content correlations: A Discussion

Free ticketed event

U495N - Sunday Workshop: Employing Engineering Lab Writing Guides to Support Lab Instructors and Students

1:00 P.M. - 3:30 P.M., B118, OREGON CONVENTION CENTER

Sponsors: Sponsored Workshops; Mechanical Engineering Division (MECH); Civil Engineering Division (CIVIL); Experimentation and Laboratory-Oriented Studies Division (DELOS)

Speakers: Dr. Charles Riley P.E., 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; Wendy Michelle Olson, Washington State University-Vancouver; Dr. Franny Technology Howes, Oregon Institute of Technology

Engineering students love labs, but they struggle with lab report writing. Lab instructors are professional writers, but they are challenged when instructing writing to undergraduates, mainly due to a lack of training and resources. Lab-report writing is critical for engineering programs to engage students in experiments (ABET outcome 6) and communication (ABET outcome 3). Workshop participants will be introduced to engineering lab-writing guides developed by a cross-disciplinary team of engineering and writing faculty supported by an NSF IUSE Level 2 grant. The guides, published at engineeringlabwriting.org, are novel because they encourage writing transfer by connecting lab-writing instruction to students' prior writing experience. The modules consist of two parts: 1) an instructor's guide focusing on lab assignments and assessment and 2) a student's guide supporting lab-writing outcomes. The guides have been used for the last three years at five schools in the Pacific Northwest to prove their effectiveness in improving engineering undergraduates' lab-report writing in entry-level engineering laboratory courses. Users commonly testify to improving their lab-writing pedagogy and student performance while reducing their lab assessment time.

The workshop offers small group activities, including the following:

1. Developing an engineering lab-report assignment

2. Improving an engineering lab-report assessment

3. Guiding students in navigating writing with Generative AI (ChatGPT)

4. Training lab-teaching assistants or lab-report graders

Participants will work through the guides in small groups to design and develop sample labs, discuss the issues related to lab writing and how to deliver the instructor's lab-writing expectations, and learn to provide feedback to students clearly and concisely. All workshop speakers are current/past PIs on multiple NSF grants, and this workshop is based on lab-writing educational research conducted over the past ten years.

Free ticketed event

U495O - SUNDAY WORKSHOP: Hands-On Lab Kits for Engineering Intro Courses

1:00 P.M. - 3:30 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Alexander Dante Lacerna, University of Florida

Introductory general engineering courses such as University of Florida's EGS1006 "Introduction to Engineering" can be successfully infused with hands-on lab activities to increase student engagement, interest, and learning. Kits can be deployed for in-person, hybrid, and all-online instruction. Workshop attendees will receive a Gatorkits Lab™ EGS1006 Interactive Lab Kit to use during the workshop. Using their kits, attendees will work through a simulated remote learner experience in which they 1) set up an experiment, 2) collect and record data, 3) analyze data, and 4) compare and discuss results with peers. Pedagogically valuable features differentiating Gatorkits Lab™ kits from conventional brick-and-mortar teaching labs will be highlighted including 1) the benefit of students assembling an apparatus to independently execute experimental investigations and 2) the importance of theory/experiment agreement when demonstrating phenomena.

Infrastructural and institutional benefits of this approach will also be illuminated including 1) enabling institutions to inexpensively reach and serve remote learners; 2) providing new instructional options for existing students, e.g. learning asynchronously by performing experiments off-campus; 3) being upwardly/downwardly scalable to match class size variations without need to add/remove infrastructure or teaching staff; 4) eliminating need to maintain physical teaching lab spaces; and 5) resilience to continue hands-on instruction if in-person classes are shuttered – for example by a pandemic.

Equipped with this workshop experience, attendees will be prepared to implement kit-based introductory engineering laboratory experiments in courses at their home institutions.

Free ticketed event

U495P - SUNDAY WORKSHOP: Hands-on Mentoring Workshop: Improving Mentoring Skills for Faculty and Staff Working with Pre-Engineering and Undergraduate Students

1:00 P.M. - 3:30 P.M., D137, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Constanza Miranda, Johns Hopkins University, Laurel; Gabriela García, Pontificia Universidad Catholica de Chile

This workshop is a joint venture between the Mentoring Initiative at the Johns Hopkins Whiting School of Engineering and the Pre-engineering Division at the School of Engineering from Pontificia Universidad Católica de Chile. Both institutions have been engaging in mentoring programs 1) to foster mentoring skills in engineering faculty, staff, and peers, interacting with pre-engineering programs and our first-year students; 2) to strengthen the scaffolding for rising high school juniors, seniors, and first-year college students related to academic socialization, start conversations around life projects, and nurturing a sense of belonging. Both institutions have worked with diversity-forward policies and forms of customized learning that have increased the need for a more formal mentoring system. The workshop will begin by providing participants with background information from both schools, followed by hands-on activities in which we will explore some of the mentoring strategies that we use in our ongoing workshops with faculty and peer mentors. The facilitators will provide worksheets, cards, and activities for the participants to engage in during the session. We hope that after the session, participants can use the tools in their own institutions.

Free ticketed event

U495Q - SUNDAY WORKSHOP: Engineering 4 All: Faculty Professional Development Around Diversity, Equity & Inclusion to Advance Undergraduate Professional Skills

1:00 P.M. - 3:30 P.M., B119, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Donald L. Gillian-Daniel, University of Wisconsin - Stout; Chris Dakes, University of Wisconsin - Madison; Dr. Christa M Wille; Lizeth Nayibe Ortiz Reyes, University of Wisconsin - Madison

Leadership, communication, ethical practices, and teamwork are cross-disciplinary professional skills that are critical for all engineering disciplines. Demonstrating these skills with an equity mindset is a growing need for engineers to more effectively bring their disciplinary technical skills to bear in the workplace as engineering professionals.

The University of Wisconsin-Madison College of Engineering launched a multi-year effort to create and support a cross-disciplinary Community of Practice (CoP) for about 30 engineering faculty from all departments and representing instructors who teach the required first year, senior design capstone, and engineering communication courses. Strategically focusing on these required courses from all disciplines provide the opportunity to impact courses that engage every student. Central to our work is the Inclusive Professional Framework for Faculty [1, 2], a holistic approach to professional development that centers equity. The Inclusive Professional Framework was created by the National Science Foundation's Eddie Bernice Johnson INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) Aspire Alliance's National Change team.

The workshop will introduce participants to the Inclusive Professional Framework, highlight how the Inclusive Professional Framework was integrated into professional development for CoP participants during a kickoff retreat, and in subsequent, topic-focused professional development sessions (i.e., teamwork, communication, ethics, and leadership), and engage participants in Inclusive Professional Framework-aligned activities directly from the CoP professional development sessions. Workshop

participants will benefit from time to reflect, share, and translate what they learn to their own institutional contexts.

Format of Workshop

The workshop will be highly interactive, with minimal one-way presentation used primarily to provide context and introduce participants to the basics of the framework. Participants will have opportunities to work individually with peers from their institution and participants from other institutions.

Session activities will include:

- Welcome, introductions, session overview, and community compact [Purpose: Interactively set the stage for engaging, productive, and collaborative sharing and learning together.]

- Individual reflection and Small Group sharing: Current successes and challenges integrating equity into cross-disciplinary professional skills training in courses [Purpose: Ground the session in participant's own experiences and institutional contexts.]

- Brief Presentation: Overview of Aspire's Inclusive Professional Framework [Purpose: Share background about the Inclusive Professional Framework, its foundation in the literature, and how it is being applied in an engineering context to promote faculty's focus on equity, to in turn advance students' cross-disciplinary professional skills learning.]

- Individual reflection and small group discussion: Exploring the salience of identity to teaching & learning [Individual reflection using an academic wheel of privilege. Example questions include: (a) How have your social identities and other factors impacted your own educational experiences? (b) What social and cultural identities and other factors are most relevant to you when you teach? (c) What personal experiences have added to this relevance?]

- Individual reflection and small group discussion: Adopting an asset-based framework [3] for student learning [Leveraging Yosso's Cultural Wealth model, participants will consider the following prompts: (a) What stories do you have about overcoming challenges that you have reframed in a positive way? (b) What resources, traits, or skills did you need to be successful in overcoming these challenges? (c) With which aspects of Yosso's cultural wealth model do those match up? (d) How can your reflections about Yosso's model translate to your work with faculty and/or students?]

- Q&A

- Individual Planning Time: Reflection and action planning. [Participants will have a structured template to help gather their thoughts for next steps/actions when they return to their own campus.]

- Q&A, sharing of resources, and wrap up

References

1) Gillian-Daniel, D. L., Greenler, R. McC. Bridgen, S. T., Dukes, A. A., Hill, L. B. (2021). Inclusion in the classroom, lab and beyond: Transferable skills via an Inclusive Professional Framework for Faculty. Change: The Magazine of Higher Learning. 53(5), 48-55. https://doi.org/10.1080/00091383.2021.1963158

2) Dukes, A. A., Gillian-Daniel, D. L., Greenler, R. McC., Parent, R. A., Bridgen, S., Esters, L. T., & El-Sayed, J. (2023). The Aspire Alliance inclusive professional framework for faculty—Implementing inclusive and holistic professional development that transcends multiple faculty roles. In S.M. Linder, C.M. Lee, S.K. Stefl, & K.A. High (Eds.), The handbook of STEM faculty development. Information Age Publishing, Charlotte, NC.

3) Yosso, Tara J. "Whose culture has capital? A critical race theory discussion of community cultural wealth." Race ethnicity and education 8, no. 1 (2005): 69-91.

Free ticketed event

U495R - SUNDAY WORKSHOP: Engineering for US All Liaison Workshop

1:00 P.M. - 3:30 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Jennifer Kouo, The Johns Hopkins University; Dr. Stacy S. Klein-Gardner, Vanderbilt University

Do your part to broaden the participation of high school students and their teachers in engineering! Join the e4usa team and experienced e4usa liaisons to kick off your participation as an e4usa liaison! Begin by learning what makes up the e4usa courses, including specific ideas for how liaisons can contribute to student success. Hear from experienced liaisons about the many different ways in which you can partner with your teacher and their students. Learn about ways that the e4usa team will support you in your practice throughout the academic year.

Free ticketed event

U495S - SUNDAY WORKSHOP: Improving Broader Impacts (BI) for NSF Grants and Beyond: A Checklist for Designing Successful Impact

1:00 P.M. - 3:30 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Mary Bonaparte-Saller; Dr. Katherine Guevara; Monica Lopez, USC Viterbi School of Engineering

The GEDC Diversity Award-winning K-12 STEM Center and ASEE Hall of Fame inductee, at the University of Southern California (USC) Viterbi School of Engineering, is committed to providing equitable, culturally responsive opportunities for youth, families, and schools in STEM.

The Center supports faculty with the Broader Impacts (BI) of their NSF grants and has helped 25 USC faculty members win their CAREER awards. In assisting faculty with this work, we have noticed trends that make for more successful proposals. We developed a resource meant as a stepwise approach that takes the form of a checklist and includes guiding questions for faculty to optimize their BI. The research-based checklist highlights and builds upon multiple, published BI frameworks.

The Center's team that coaches faculty on their BI will share noted challenges with BI statements the team has reviewed, and invite participants to contribute their own challenges. This active and practical workshop will include an opportunity for participants to recognize and remediate deficit language, practice utilizing the provided checklist to improve a sample BI statement, and create a plan for improving their next BI statement using the provided guide and prompts.

This workshop is intended for anyone interested in submitting a grant proposal, particularly one that includes a BI component with a K-12 population. Current and prospective NSF reviewers may also find the session beneficial.

Free ticketed event

U495T - SUNDAY WORKSHOP: Design Signatures in the Wild: Making the Invisible Visible

1:00 P.M. - 3:30 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Cynthia J. Atman, University of Washington; Prof. Reid Bailey, University of Virginia; Prof. Susannah Howe, Smith College; Dr. Daria A Kotys-Schwartz, University of Colorado Boulder; Dr. Micah Lande, South Dakota School of Mines and Technology; Prof. Eli Patten, University of Washington; Krina Patel, University of California, Berkeley; Dr. Jennifer A. Turns, University of Washington

This workshop engages with the question: how might we help students become better able to intentionally engage in a design process, as part of an effort to help them become reflective practitioners of design? On a theoretical level, this work connects to the diversity of design processes and research on metacognition. This workshop also builds on prior research on helping students to become more metacognitively aware of their current state in a design process.

In this interactive 2.5-hour workshop, participants will learn how to build self-awareness for their students and themselves through self-tracked design timelines (that we are calling Design Signatures). With these design signatures visible in front of them, students and faculty can better reflect on an otherwise invisible design process.

WORKSHOP ACTIVITIES AND CONTENT:

1. Introduction and Research Context (15 minutes)

2. Experiential Learning: Participants in the student role (Design activity with timeline/signature tracking, De-brief) (45 minutes)

Break (15 minutes)

3. Application and Discussion: Participants as educators and partners (walkthrough of design signature implementation in different contexts, development of ideas and plans by participants in affinity groups, gallery walk and report out) (60 minutes)

4. Wrap-up (postcard to your future self, creation of follow-up groups) (15 minutes)

ANTICIPATED AUDIENCE:

We anticipate that this research-to-practice workshop would

appeal to multiple audiences including graduate students and educators who are interested in teaching design to undergraduates.

FACILITATORS:

This group of design educators has experience using design signatures to teach undergraduate engineering students about design processes from first-year students to graduating seniors. We have used design signatures in a variety of ways ranging from short in-class activities to longer efforts where seniors track their capstone projects. We have collected signatures using paper-and-pencil bubble sheets, Google forms, spreadsheets, and a newly-developed Design Signatures app. In each implementation students have had great "aha" moments about the design process and themselves as designers. The workshop facilitators have extensive experience implementing these concepts in their design teaching.

Free ticketed event

U495U - SUNDAY WORKSHOP: Beyond the Blueprint: Sociotechnical Integration in Engineering Courses

1:00 P.M. - 3:30 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Shanna R. Daly, University of Michigan; Dr. Steve J. Skerlos, University of Michigan; Claudia G. Cameratti-Baeza, University of Michigan; Dr. Sara L. Hoffman, University of Michigan; Charlie Michaels, University of Michigan; Dr. Erika Mosyjowski, University of Michigan

Learning Objectives for Participants:

1.Experiential Learning: By the end of the workshop, participants will be able to explain at least three different sociotechnical engineering and design content examples that could be integrated into their courses. Examples will be provided and discussed during the workshop, drawing from a large content library that has been developed at the Center for Socially Engaged Design at the University of Michigan and from which content and session plans have been effectively integrated within undergraduate engineering courses. Tangible examples of how such content can be adapted and applied in diverse educational contexts will also be provided, and participants will learn from each other about the applicability of such content to courses in their home institutions.

2.Content Development Strategies: Participants will be able to describe multiple ways that sociotechnical content can be integrated within engineering courses--for example, within their design methods instruction, through the incorporation of contextual case studies, within homework assignments, and by leading critical discussions of engineering assumptions. Participants will develop a plan for integrating novel sociotechnical content into one of their undergraduate engineering design courses using these content integration strategies. Their plan will also represent their ability to describe benefits of enriching undergraduate engineering education with a socially engaged perspective.

3.Facilitation Techniques: Participants will be able to name multiple strategies and processes for introducing sociotechnical engineering content into engineering design classroom settings. These strategies include pedagogical methods and collaborative approaches that facilitate the seamless integration of socially engaged engineering concepts into existing curricula. By the end of the session, attendees will demonstrate an understanding of at least two pedagogical methods for integrating sociotechnical engineering content into classroom settings, as evidenced by creating and sharing a lesson plan that incorporates these methods.

Agenda

- (10 minutes) Introductions and overview of socially engaged engineering
- (40 minutes) Engagement in case study of socially engaged engineering work
- (10 minutes) Reflections on case study and sharing of other ways socially engaged engineering content can and has been incorporated into engineering classrooms
- (20 minutes) Overview of Center for Socially Engaged Design educational materials with content examples
- (10 minutes) Discussion of pathways to integration of socially engaged engineering materials into course and potential barriers
- (10 minutes) Discussion of research findings of student impacts of socially engaged content and instructor perspectives of integration
- (20 minutes) Participants' planning time; one-on-one discussions with workshop team leadership

Free ticketed event

U495V - SUNDAY WORKSHOP: Approaches and Best Practices in Mentoring Undergraduate Research

1:00 P.M. - 3:30 P.M., A106, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Christy Wheeler West, University of South Alabama; Dr. Joseph H. Holles, New Mexico State University

Undergraduate Research (UR) has garnered attention as a high-impact educational practice to recruit and retain students, often a focus in university outreach and recruitment campaigns. While benefits to students are well studied, advantages to faculty mentors are less studied, and their time commitment is often not formally incentivized. This workshop will offer approaches for faculty to employ UR experiences towards their own research goals while benefiting their students and institution. Success depends on strategic planning of the project; goals of the mentor, students, and institution; and clear agreement on expectations.

As undergraduate research has grown more prevalent, some colleges and universities have created formal mechanisms, such as funded summer programs. Even within those programs, the student experience usually fits into one of four models:

•faculty-generated and faculty-mentored project

•instructor-led, course-based group mentoring and/or group research project

•graduate student project assistant

•student-generated project with faculty mentorship.

We will explore advantages and disadvantages of each approach, and then focus on the first two, which involve the most faculty effort, but arguably the most student benefit.

In engineering and other STEM disciplines, UR projects usually fall within the research program of the faculty mentor, who benefits from additional assistance to collect data for grant proposals and papers. This advantage is best realized through a strong, active relationship, requiring mentor time commitment. Best practices for effective mentoring include:

•planning projects tailored to student experience and constraints

•setting clear expectations to meet mentor, student, and institutional goals

•teaching technical skills, research methods, and disciplinary norms

•supporting professional development by one-on-one interaction

•fostering a community of faculty mentors and student researchers.

On an individual basis, these practices can be inefficient and perhaps untenable for a tenure-track faculty member. This workshop will provide faculty with best practices to efficiently manage their undergraduate research students.

The workshop organizers are also conducting research on the benefits and barriers to faculty to mentor undergraduate research. They have developed a tool for examining these questions. Initial efforts will focus on study participation by chemical engineering faculty. Through this workshop at ASEE, the organizers are seeking to expand survey participants to a wider engineering background.

U495W - SUNDAY WORKSHOP: Cyber-Informed Engineering

1:00 P.M. - 3:30 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Benjamin Lampe; Virginia Wright

Understanding Cyber-Informed Engineering (CIE) and its twelve principles is a new mode of system thinking and stewardship for training engineers. Successful education of CIE will ensure that engineers working in industry, especially in critical infrastructure, implement a more robust and complete cybersecurity implementation. This workshop will present an engineered system and walk participants through the adoption of CIE principles against this system. Adopting CIE practices that this system harnesses demonstrates how engineered controls reduce the overall cyber risk and promote clear and effective communication to cybersecurity professionals. So as CIE and traditional cyber protections are implemented into a system design and implementation, we can achieve a more robust and complete cybersecurity implementation.

Free ticketed event

U495X - SUNDAY WORKSHOP: Preparing Competitive NSF Proposals in Engineering and Computing Education

1:00 P.M. - 3:30 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Prof. Huihui H. Wang, IEEE Educational Activities; Dr. Matthew A. Verleger Ph.D., National Science Foundation; Dr. Christine Michelle Delahanty, National Science Foundation; Dr. Lulu Sun, Embry-Riddle Aeronautical University - Daytona Beach; Dr. Margret Hjalmarson, National Science Foundation

Prior to this workshop, participants will be asked to have reviewed three redacted NSF proposals related to engineering or STEM education topics. They will be asked to rate those proposals on NSF's standard rating scale (E, V, G, F, P), and to have taken notes regarding the strengths and weaknesses of each proposal with regards to Intellectual Merit and Broader Impacts. Attendees will participate in an interactive proposal review panel to help them better understand the NSF merit review criteria and review process.

Several Program Directors (PD) of the National Science Foundation (NSF) directorates of STEM Education (EDU) and Engineering (ENG) will briefly introduce funding opportunities of engineering and computing education programs and provide insights on preparing competitive proposals to support engineering and computing education research. Several current NSF grantees will introduce their NSF-funded projects and answer questions. Program Directors will highlight approaches of how to craft competitive NSF education proposals. PDs will also hold office hours in the ASEE exhibit hall to provide one-on-one meetings with prospective principal investigators.

Agenda:

1. Introduction: A brief overview of funding opportunities of the NSF programs of the Division of Engineering Education Center, Division of Undergraduate Education, Division of Graduate Education, Division of Research and Learning, and Division of Excellence in Equal STEM Education (25 min)

2. NSF Grantees' Presentations and Q & A: Experience and Insights from Recent NSF Grantees (50 min)

3. Break (15 min)

4. Mock Proposal Review Panel: Review of Previously Submitted NSF Proposals (Breakout groups, 60 min)

Free ticketed event

U495Y - SUNDAY WORKSHOP: Machine Learning for All: A Beginner's Workshop on Practical Applications for Researchers

1:00 P.M. - 3:30 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Jude Okolie, University of Oklahoma; Emma Kadence Smith, University of Oklahoma

Machine learning (ML) technology is facilitating a transformative shift in problem-solving methodologies, transitioning from analytical strategies to potent data-driven approaches. This is achieved through computer programs that discern patterns and models from training data, enabling them to make predictions based on new data. Due to the surging availability of extensive data and enhanced computing power across various industries, ML is rapidly evolving into an indispensable tool in contemporary engineering. It is widely acknowledged that advanced education in ML and artificial intelligence opens up a plethora of opportunities for students. It not only captivates their interests but also expands their horizons and enhances their global competitiveness, particularly for those pursuing studies in STEM. However, researchers with limited or no programming experience hardly apply ML concepts in improving their data collection and analyzing their results. Therein lies the motivation for this dynamic, hands-on workshop designed to introduce researchers and students with little to no programming experience to the concepts of ML. This workshop will demystify the core concepts of ML and offer practical sessions where participants can work with real-world data. Attendees will learn how to harness ML to enrich their research, gain insights from data analysis, and foster interdisciplinary collaboration.

Free ticketed event

U495Z - SUNDAY WORKSHOP: Conducting High-Quality Education Research in Engineering Centered on All Students

1:00 P.M. - 3:30 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Monica McGill, Institute for Advanced Engineering; Isabella Gransbury, North Carolina State University at Raleigh; Jennifer Rosato, University of Minnesota - Twin Cities; Leigh Ann DeLyser

When considering equity in education research, the historical context and legacy of our nations determine who have been traditionally viewed as scientists, engineers, and mathematicians (i.e., the wealthy, able-bodied, male, cisgendered, heterosexual). This context and legacy are tied to the lack of representation we currently see in our fields of study and must be considered when conducting science education research (Pearson, Castle, Matz, Koester & Byrd, 2022). Equity-enabling education research goes well beyond who is included in studies. It must come to terms with the researchers' sets of assumptions surrounding reality and knowledge of power dynamics (Aliyu, Singhry, Adamu, & AbuBakar, 2015), the role of values in research (axiology), and the dominant knowledge and power relationships (Rowe, Baldry, & Earles, 2015). Using particular research methods (e.g., ethnographic research) can contribute to equity and social justice in education (Atkins & Duckworth, 2019). Pearson, Castle, Matz, Koester & Byrd (2022) note that "STEM fields have a history of conducting research, creating theories, and making measurements that primarily centered white, cisgendered, male, heterosexual, able-bodied, wealthy individuals" (Pearson, et al., 2022, p. 3). Prioritizing "the unique ontological, epistemological, and axiological positioning" of participants can further enable efforts to create equity-enabling education research that reflects their lived experiences (Rowe, Baldry, & Earles, 2015). Chilean researcher Montecinos (2004) notes that, in studies with all White participants, not presenting this information within publications makes ``Whiteness'' invisible, which by default then secures the norm of Whiteness (Giroux, 1992; Montecinos, 2004). Similarly, Fernandez (2019), referring to medical education research, notes that research should go beyond the mean impact and be purposeful and intentional in examining the wide range of promising practices for subgroups of learners that are defined by learning characteristics (e.g., prior learning experiences) as well as demographic-related cultural characteristics.

Based on the need for more engineering education research approached with an equity lens, this event will be a hands-on, in-person workshop that emphasizes several key learning goals. We chose an in-person format, as the follow-up webinars will be virtual and the blend between the two formats will strengthen the comfort levels and relationships between and among the attendees and facilitators. We provide the content area, measurement items, and workshop structure. The times also include time for attendees to ask questions.

Module 0 - Introduction (approx. 20 minutes)

* Focus area: Introductions, definitions, and framing for the training

* At the end of this module, attendees will be able to describe why methodologically sound, equity-enabling education research is important, describe characteristics of high-quality research, describe characteristics of equity-enabling research, and describe impacts of conducting and not conducting sound and equity-enabling research.

* Workshop elements will include starting with a prompt for 1, 2, 4 discussion method of characteristics of "high quality" and facilitators share remaining framing for the workshop.

Module 1 - Your place in research (approx. 30 minutes)

* Focus area: Researcher reflexivity and positionality

* At the end of this module, attendees will be able to 1) Identify the expansive intersection of identities needed to understand their full positionality and write a positionality statement with a subset of those identities, 2) Explain how researcher reflexivity can improve their research, and 3) Explain how researcher well-being impacts their research.

Measurement Items

* Workshop elements include starting with a prompt for defining different identities and how they may impact a learning experience, facilitators define positionality and reflexivity in research, participants identify and reflect upon at least one aspect of their positionality and how it may impact their research, share one identity (for those who want to share with the group), provide a case study presentation of research scenario, then discuss identities that might influence the research study, and relate the case study back to the shared identities.

Module 2 - Empowering Questions, Inclusive Visions

(approx. 30 minutes)

* Focus area: Framing problems and research questions

* At the end of this module, attendees will be able to use pre-existing research, data, and community voice to frame a problem statement, write a research question that explicitly connects one or more factors (including participants, power, history, socio-cultural context, and issues of equity) to the problem and that will inform knowledge base, policy, or practice in a way that promotes further study or action to address the findings, write a research question (or primary question and subquestions) with an explicit equity focus, and identify the need for, and value in, diverse voices in the research design as well as in the ongoing evaluation, reflection, and data analysis stages of research. Especially important are experts in the lived experiences of the community as well as the methods and approaches connected to the type of question being addressed by the research.

* Workshop elements will include discussing ways to include participant situational contexts in the research problem framing, including asset versus deficit based approaches, using an example of case study of one research problems and corresponding questions, including reflective prompts for participants to discuss.

Module 3 - Critical framework (approx. 30 minutes)

* Focus area: Choosing and using theoretical and conceptual frameworks in research that match the situational contexts of study participants

At the end of this module, attendees will be able to:

Explain why critical frameworks are important (and what it means when they aren't used) and when to identify/apply them (in design and not just the paper writing stage)

Find and build understanding of critical frameworks within and outside of science education research

Select and apply a framework.

Workshop elements - Facilitators will discuss the value of frameworks, the difference between theoretical and conceptual frameworks, common frameworks in education research for various situational contexts, and where to find them. Pairs of participants will be given two cases and 6 frameworks; participants will discuss which framework they would choose for each scenario and why. Facilitators will discuss how to apply frameworks to education research.

Module 4 - Instrumentation and Protocol Development (approx. 30 minutes)

* Focus area: Know your study population and how to develop and use appropriate instrumentation/protocols

* At the end of this module, attendees will be able to identify threats to validity based on analysis (or lack of power within subgroups preventing disaggregation for subgroups), understand representations/evidence of validity for existing instruments and how it impacts the choice of instrument, define types of validity and how they apply to particular protocols and populations, and discuss how instruments are delivered and how that process may impact ethics, accessibility, and other factors within the population.

* Workshop elements - Facilitators will discuss instrumentation/protocols, including situational contexts to consider as well as evidence of reliability and validity, and where to find instrumentation and use a case study of a research project and its instrumentation with an equity lens focused on what is and is not included.

Closing

* Review each of the modules

* Discuss where to find additional resources

* Challenge participants to commit to one aspect of these guidelines to focus on the next six months

* Ask what questions remain unanswered

Free ticketed event

U569 - ASEE DIVISION MIXER

3:30 P.M. - 5:00 P.M., OREGON BALLROOM 201-204 - DIVISION MIXER, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Join your friends and colleagues at our member engagement event—the Division Mixer.

See the full list of participants:

https://aseecmsprod.azureedge.net/aseecmsprod/asee/media/content/annual%20conference/2024/division-mixer-pdf.pdf

SUNDAY, JUNE 23rd SESSIONS

U592 - Discussion and Invitation to Engage in the New Engineering Education Journal (EER) by Representatives of Tsinghua University in Beijing, China

3:35 P.M. - 5:00 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Organizations Outside ASEE

Discussion and invitation to engage in the new Engineering Education Journal (EER)

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

5:00 P.M. - 7:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Join your colleagues as we open the ASEE Annual Conference Exhibit Hall and welcome attendees to the 2024 conference. Find old friends or forge new connections while you taste the best that Portland has to offer.

U669A - ASEE Bistro - Sponsored by Great Minds in STEM

5:00 P.M. - 7:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

U705 - Chemical Engineering Division Game Night!

7:00 P.M. - 9:00 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Chemical Engineering Division (ChED)

Moderator: Chris Barr, University of Michigan

Bring your board games or just show up to play and network with other members of the Chemical Engineering Division!

U721 - Engineering Libraries Division Social

7:00 P.M. - 9:00 P.M., OFF-SITE BY INVITATION ONLY

Sponsor: Engineering Libraries Division (ELD)

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

U782 - Sunday Evening Nightcap for Deans and Associate/ Assistant Deans

7:00 P.M. - 9:00 P.M., OFFSITE, SPOKE & FORK LOUNGE AT THE HYATT REGENCY PORTLAND AT THE OREGON CONVENTION CENTER, 375 NE HOLLADAY STREET, PORTLAND, OREGON, UNITED STATES, 97232

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Cynthia Paschal, Vanderbilt University; John-David Yoder, Ohio Northern University

This informal session for academic leaders responsible for undergraduate education is an opportunity to engage in lively conversation and network. Cash bar.

M169A - Sunrise Yoga

7:00 A.M. - 7:45 A.M., OREGON BALLROOM FOYER/PLAZA, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M169B - ASEE Registration Open

7:00 A.M. - 5:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M150 - TYCD Engineering Design Competition Poster Session

8:00 A.M. - 9:00 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderators: Philip Regalbuto, Trident Technical College; Pamela Silvers, Asheville-Buncombe Technical Community College

Two-Year College Division Poster Session

M169C - MONDAY PLENARY & Keynote Speaker

8:00 A.M. - 9:00 A.M., PORTLAND BALLROOM A - GENERAL SESSION, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Moderator: Doug Tougaw, Valparaiso University

Speaker: Dr. Jayathi Y. Murthy P.E.

The opening plenary kicks off ASEE's Annual Conference with a bang! ASEE President Doug Tougaw will welcome attendees. A keynote address by Oregon State University President Jayathi Murthy will provide important insights and set the tone for the conference's dynamic learning opportunities and meaningful conversations.

M169D - Complimentary Childcare - Limited Availability - Advanced Registration Required

8:00 A.M. - 5:00 P.M., HOLLADAY SUITE - CHILDCARE ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

https://form.jotform.com/KiddieCorp/aseekids

We are delighted to announce that KiddieCorp will be hosting the children's program during the 131st Annual Conference and Exposition. With thirty-eight years of experience, KiddieCorp has been a trusted provider of high-quality children's programs and youth services for conventions, trade shows, and special events.

KiddieCorp's longstanding partnership with the American Academy of Pediatrics has played a key role in establishing us as a premier provider of children's program services. Our commitment to caring for your children is our top priority, ensuring they not only have fun but also receive excellent care.

CHILDREN'S PROGRAM DETAILS

Date and Hours:

Sunday, June 23 - 8:00 a.m. to 5:00 p.m.

Monday, June 24 - 8:00 a.m. to 5:00 p.m.

Tuesday, June 25 - 8:00 a.m. to 5:00 p.m.

Wednesday, June 26 - 7:00 a.m. to 5:30 p.m.

Ages:

6 months through 15 years old

Ratios:

1:2 for children ages 6 months through 11 months old

1:3 for children ages 1 through 2 years old

1:5 for children ages 3 through 5 years old

1:7 for children ages 6 through 12 years old

1:10 for children ages 13 through 15 years old

Registration:

Child care hours are provided in 2-hour blocks (with the exception of the last hour). Please book only the block(s)

you intend to utilize. Child care availability is limited and operates on a first-come, first-served basis. A waitlist will be initiated once capacity is reached.

Please note that this program is complimentary for attendees of the ASEE Annual Conference only.

Please note: To prevent overbooking, a credit card will be required to confirm your reservation. This credit card information will be kept on file and will only be charged if you fail to attend your reserved days/hours or if you cancel your entire reservation after June 10, 2024.

You have until June 10th to make changes to your reservation without incurring a fee. After this date, a $50.00 per day no-show/cancellation fee will apply.

Advance registration deadline: June 10, 2024

We encourage early registration as availability is limited and operates on a first-come, first-served basis. To secure advance reservations, both the registration form and credit card info must be received by KiddieCorp. On-site registration will be limited to available space.

M169E - Mothers Room

8:00 A.M. - 5:00 P.M., A102 - MOTHERS ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M169F - Quiet Room

8:00 A.M. - 5:00 P.M., A101 - QUIET ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M269A - ASEE Bistro Sponsored by Great Minds in STEM

9:00 A.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M269C - Exhibit Hall & Poster Board Viewing Open

9:00 A.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

M201 - Aerospace Division (AERO) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Mary Johnson, Purdue University at West Lafayette (PPI)

Advancements in Aerospace Education

Board 1: Empowering Underrepresented Minority Students in One Aviation Program: Integrating a National Airport Design Competition into the Curriculum

Dr. Yilin Feng, California State University, Los Angeles

Board 2: Exploring Average Taxi Times at U.S. Hub Airports with ASDE-X

Mr. Jiansen Wang, Purdue University

Mr. Shantanu Gupta, Purdue University

Prof. Mary E. Johnson Ph.D., Purdue University

Board 3: Risk Management in Helicopter Air Ambulance Operations Using PFMEA

Mr. Gustavo Sanchez, Purdue University

Prof. Mary E. Johnson Ph.D., Purdue University

Mr. Shantanu Gupta, Purdue University

Board 4: Work in Progress: Development of a Culturally Responsive, Community-based Fluid Dynamics Mini-Unit for Middle School

E. Tyler Young, The Ohio State University

M204 - Biomedical Engineering Division (BED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Poster presentation for all Works-in-Process (WIP) for the Biomedical Engineering Division (BED)

Board 5: Work in Progress: Effectiveness and Utility of Video Feedback for CAD Models

Dr. Julian M. Lippmann, University of Miami

Board 6: Robot Temperament Assessment as a Method to Expose Students to the Humanistic Aspects of Biomedical Engineering

Dr. Uri Feldman, Wentworth Institute of Technology

Dr. George D. Ricco, Miami University

Board 7: Work in Progress: A Collaborative, Principle-focused Curriculum Design Process for a BME Undergraduate Program

Dr. Shannon Barker, University of Virginia

Dr. Brian P. Helmke, University of Virginia

Lynn Mandeltort, University of Virginia

Dr. Kristen Naegle, University of Virginia

Dr. Jessica Taggart, University of Virginia

Dr. Timothy E. Allen, University of Virginia

Dr. Brent A. French, University of Virginia

Board 8: Work in Progress: Bridging Theory and Practice: Innovation-Based Learning and NSF I-Corps in Modern Engineering Education

Abigail Tubbs, University of North Dakota

Ms. Paige Beduhn, University of North Dakota

Ryan Striker, University of North Dakota

Mr. Enrique Alvarez Vazquez, North Dakota State University

Dr. Dan Ewert, University of North Dakota

Board 9: Work in Progress: Collaborative Learning to Develop Laboratory Modules that Support Knowledge Gain and Professional Development in a Biomedical Engineering Graduate Course

Dr. Marcia Pool, University of Illinois Urbana-Champaign

Prof. Rohit Bhargava

H. Rex Gaskins, University of Illinois Urbana-Champaign

Board 10: Work in Progress: Design of a Full-Time Summer Research Program for High School Students

Marla Hilderbrand-Chae, University of Massachusetts, Lowell

Dr. Adam St. Jean, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

Board 11: Work in Progress: Development and Assessment of an Innovative, Student-Centered Biomechanics Course

Dr. Pattie S. Mathieu, Marian University

Board 12: Work in Progress: Enhancing Student Engagement and Interest in STEM Education through Game-Based Learning Techniques in Bioengineering and Electrical Engineering Core Curricula and How to Create Them

Dr. Ali Ansari, University of Illinois Urbana-Champaign

Board 13: Work in Progress: Exploring Student Disposition in a Foundational Conservation Principles of Bioengineering Course

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Yael Gertner, University of Illinois Urbana-Champaign

Juan Alvarez, University of Illinois Urbana-Champaign

Benjamin Cosman, University of Illinois Urbana-Champaign

Board 14: Work in Progress: Exploring the Integration of Bio-Inspired Design Inventions in Biomedical Engineering

Eisa A. Khawaja, Alpharetta High School

Dr. Hoda Ehsan, The Hill School

Board 14A: Work in Progress: Integrating Information and Data Literacy Skills into Biomedical Engineering Laboratory Courses

Mr. Alexander James Carroll, Vanderbilt University

Dr. Joshua Daniel Borycz, Vanderbilt University

Prof. Amanda R. Lowery, Vanderbilt University

Sheldon Salo, Vanderbilt University Library

Eric Spivey, Vanderbilt University

Board 15: Work in Progress: Mixing Flipped and Traditional Teaching to Support Conceptual Learning and Motivation in a Cell and Molecular Biology Course

Dr. Laura Christian, Georgia Institute of Technology

Todd M. Fernandez, Georgia Institute of Technology

Board 16: Work In Progress: New Pedagogical Strategies for Senior Design BME Projects Involving Industry Partners

Dr. Krystyna Gielo-Perczak, University of Connecticut

Board 17: Work in Progress: Promoting Equitable Team Dynamics in a Senior Biomedical Engineering Design Course

Dr. Jennifer H. Choi, University of California, Davis

Board 18: Work in Progress: The ATP-Bio REU Boot Camp: An Innovative Approach to Building a Sense of Community in Support of Broadening Participation in Biomedical Engineering

Dr. Seth K. Thompson, University of Minnesota, Twin Cities

Alyssa A. Burger

Emily Goff, University of Minnesota - Twin Cities

Catherine Heremans

Christopher Hogan, University of Minnesota, Twin Cities

Gina Ristani, University of Minnesota, Twin Cities

Guadalupe Ruiz, University of California, Riverside

Basak E. Uygun, Massachusetts General Hospital

Keisha Varma, University of Minnesota, Twin Cities

Johaynah Alriffi, Texas A&M University

Board 19: Work in Progress: Towards Self-reported Student Usage of AI to Direct Curriculum in Technical Communication Courses

Kavon Karrobi, Boston University

Angela Lai, Tufts University

Board 20: Work in Progress: Understanding Student Perceptions and Use of Generative Artificial Intelligence for Technical Writing

Dr. Amy N. Adkins, North Carolina State University

Dr. Naji S. Husseini, North Carolina State University

Dr. Lianne Cartee, North Carolina State University

Board 21: Work-In-Progress: The Influence of Digital and In-Person Pedagogical Interventions on Undergraduate Biomedical Engineers

Ms. Victoria Rose Garza, The University of Texas at San Antonio

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Dr. Teja Guda, The University of Texas at San Antonio

M205 - Chemical Engineering Division (ChED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Board 22: A Multi-Tiered Mentoring Community Approach to Expanded Research Experiences for Local Students from Complex and Underrepresented Minority Backgrounds

Mr. Thomas McKean, University of Arkansas

Dr. Ranil Wickramasinghe P.E., University of Arkansas

LaShall Bates

Gary Bates

Jacquelyn Wiersma-Mosley, University of Arkansas

Board 23: Add a Real Experience on Process Control Lab to your Students … for Free!

Dr. Joaquin Rodriguez, University of Pittsburgh

Michael McMahon

Board 24: Development of Multi-User-enabled, Interactive, and Responsive Virtual/Augmented Reality-based Laboratory Training System

Prof. Ariel Chan, University of Toronto

Jackie Anjie Liu, University of British Columbia, Vancouver

Board 25: Promoting Chemical Engineering Students' Entrepreneurial Mindset in A Chemical Reactor Design Course

Prof. Jean M. Andino Ph.D., P.E., Arizona State University

Board 26: Reducing Environmental Impact in Higher Education: Curriculum Design for the Sustainable-Unit Operations Laboratory

Dr. Ariel Chan, University of Toronto

Ms. Chijuan Hu, Texas Tech University

Board 27: Work in Progress: Where We Live: The Process of Building an Experiential-Energy Design Course for Undergraduate Chemical Engineering

Dr. Desen Sevi Özkan, University of Connecticut

Monika Crowl, University of Connecticut

Board 28: Work in Progress: Glucose Analyzer Learning Module for Chemical Engineering Education Theory

Riley Jackson Fosbre, Washington State University

Prof. Bernard J. Van Wie, Washington State University

Dr. Prashanta Dutta, Washington State University

David B. Thiessen, Washington State University

M206 - Civil Engineering Division (CIVIL) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Board 29: A Service-Learning Project for Surveying Students: Establishing Base-Flood Elevations in Special Flood Hazard Area A

Dr. Salvatore Marsico, Pennsylvania State University

Henrique Candido de Oliveira, Pennsylvania State University

Board 30: The Ecological Choice for Engineering Education: Decisions on Sustainability in Civil Engineering and the Impact of Cognitive Bias

Charlotte Robison, Oregon State University

Cristina G. Wilson, Oregon State University

Board 31: Case Study: Reimagining a Design Project with 3D-printed Concrete

Afeefa Rahman, University of Illinois Urbana-Champaign

Casey J. Rodgers, University of Illinois Urbana-Champaign

Prof. Jacob Henschen, University of Illinois Urbana-Champaign

Board 32: Designing a Graduate Course in Sustainable Transportation and Human Rights with a Student-Centered Approach

Leana Santos, University of Connecticut

Dr. Davis Chacon-Hurtado, University of Connecticut

Board 33: Enhancing Self-Efficacy Among Transportation Engineering Undergraduates Using Hands-On Pedagogy.

Mr. Adebayo Iyanuoluwa Olude, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Dr. Petronella A. James-Okeke, Morgan State University

Dr. Celeste Chavis P.E., Morgan State University

Board 34: Equity Diversity and Inclusion (EDI) and Entrepreneurial Mindset Learning (EML) in Core Engineering Classes: A Case Study in Statics

Dr. Ghina Absi, Vanderbilt University

Emily Williams Van Schaack, Vanderbilt University

Board 35: Essentials of the Nurse + Engineer: Defining Public Value for Civil Engineers

Dr. Daniel B. Oerther P.E., Missouri University of Science and Technology

Sarah Oerther

Board 36: Exploration of the Impact of Brief Mindfulness Practices on Student Attention and Focus in Civil-Engineering Design Classes

Dr. Priyantha Wijesinghe, University of Vermont

Holly Ann Buckland Parker, University of Vermont

Ethan Stein, University of Vermont

Board 37: Integration of Project-based Learning in a Surveying Course

Dr. Fahmida Rahman, Rowan University

Aaron Nolan, Rowan University

Dr. Kauser Jahan, Rowan University

Eric DuBois

Board 38: Student-led Curriculum Development: Incorporating Mechanics of Materials Students in the Design of Statics Curricula (Work in Progress)

Dr. Matthew Stephen Barner, University of Portland

Mr. Sean Lyle Gestson, University of Portland

Audrey Dewey

Board 39: Student Opinions on Example Problem 'Solution Walkthroughs' for Civil Engineering Topics

Dr. Joel Lanning, University of California, Irvine

Board 40: Work in Progress: Generative AI to Support Critical Thinking in Water Resources Students

Sixto Duran Ballen

Daniel Abril Camino

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

Board 441: Work in Progress: Unlocking Student Success: The Power of Public Speaking AI Software in Engineering Education

Mrs. Rachelle L. Beckner, Clemson University

Dr. Robert M. O'Hara, Clemson University

M208 - Computers in Education Division (COED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderators: Mike Borowczak, University of Central Florida; Mahnas Mohammadi-Aragh, Mississippi State University

Work-in-progress papers are presented in this poster session for Computers in Education Division. All papers in this session will compete for the Division's Woody Everett Award, which recognizes the best presentation in the CoEd poster session of the ASEE Annual Conference. This award recognizes the selfless contributions of Dr. Woodrow W. Everett, Jr. to the Computers in Education Division.

Board 42: A Comparative Analysis of Across Interdisciplinary Settings Integration Practice in Educational Data-Mining Class Using Community of Practice

Mr. Brayan A. Díaz, North Carolina State University

Prof. Kevin Han, North Carolina State University

Board 43: AP-CS, ChatGPT and Me: a High School Student Perspective

Dr. Zoe Wood, California Polytechnic State University, San Luis Obispo

Miguel Manoah Refugio Greenberg

Board 44: CampNav: A System for Inside Buildings and Campus Navigation

Mr. Jiping Li, University of Toronto

Zhiqiang Yin, University of Toronto

Dr. Hamid S. Timorabadi P.Eng., University of Toronto

Board 45: Generative Artificial Intelligence (GAI)-Assisted Learning: Pushing the Boundaries of Engineering Education.

Dr. Ibukun Samuel Osunbunmi, Pennsylvania State University

Dr. Stephanie Cutler, Pennsylvania State University

Mr. Viyon Dansu, Florida International University

Mr. Yashin Brijmohan, University of Nebraska, Lincoln

Bolaji Ruth Bamidele, Utah State University

Abasiafak Ndifreke Udosen, Purdue University, West Lafayette

Lexy Chiwete Arinze, Purdue University, West Lafayette

Dr. Adurangba Victor Oje, University of Georgia

Deborah Moyaki, University of Georgia

Melissa J. Hicks, Pennsylvania State University

Bono Po-Jen Shih, Pennsylvania State University

Board 46: Integrating AI in Higher-Education Protocol for a Pilot Study with 'SAMCares An Adaptive Learning Hub'

Syed Hasib Akhter Faruqui, Sam Houston State University

Nazia Tasnim, University of Texas at Austin

Dr. Iftekhar Ibne Basith, Sam Houston State University

Dr. Suleiman M. Obeidat, Texas A&M University

Dr. Faruk Yildiz, Sam Houston State University

Board 47: A Mentor-Mentee Matching Algorithm to Automate Process of Finding an Ideal Mentor for Students

Ms. Sweni Shah

Dr. Hamid S Timorabadi P.Eng., University of Toronto

Sanjana Dasadia

Samreen Khatib Syed

Doaa Muhammad, University of Toronto

Board 48: Perceptions of ChatGPT on Engineering Education: A 2022-2023 Exploratory Literature Review

Trini Balart, Texas A&M University

Dr. Kristi J. Shryock, Texas A&M University

Board 49: Work in Progress: Using Generative AI for Reducing Faculty Workload in Online Engineering Courses

Mr. Gerry A. Pedraza, Texas A&M University

Dr. Sunay Palsole, Texas A&M University

Board 50: Work in Progress: A Systematic Review of Embedding Large Language Models in Engineering and Computing Education

Dr. David Reeping, University of Cincinnati

Aarohi Shah, University of Cincinnati

Board 51: Work in Progress: Cognitive and Emotional Effects of the Video Game Freedom Bridge

Samuel Opeyemi Falade, Texas A&M University

Dr. Kristi J. Shryock, Texas A&M University

Dr. Michael S. Rugh, Texas A&M University

Andre Thomas, Texas A&M University

Board 52: Work in Progress: Datastorm: Using Data-Driven Competition to Improve Student Engagement in Computer Science

Dr. Ankunda Kiremire, Louisiana Tech University

Kevin A. Cherry, Louisiana Tech University

Board 53: Work in Progress: Engaging the Next-Generation of IC Designers with Puzzle-Solving Competitions

Prof. Daniel Limbrick, North Carolina A&T State University

Laura Marcela Garcia Suarez

Deriech Cummings II, North Carolina A&T State University

(Board 54: Work in Progress: Exploring How an Unofficial Discord Server Supports Undergraduate Learning in Computer Science

Makayla Moster, Clemson University

Dr. D. Matthew Boyer, Clemson University

Board 55: Work in Progress: Exploring Office Hour Interactions in a Data Structures and Algorithms Course

Alexander Hicks, Virginia Polytechnic Institute and State University

Prof. Cliff Shaffer, Virginia Polytechnic Institute and State University

Board 56: Work in Progress: How Do Students Spend Their Time Studying in a CS Discrete Math Course?

Yael Gertner, University of Illinois Urbana-Champaign

Juan Alvarez, University of Illinois Urbana-Champaign

Benjamin Cosman, University of Illinois Urbana-Champaign

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Board 57: Work in Progress: Immersive Learning: Maximizing Computer Networks Education Based on 3D Interactive Animations

Yixin Zhang, University of Toronto

Hanzhang Xing

Yaqi Zhang, University of Toronto

Xinyan Du, University of Toronto

Dr. Hamid S. Timorabadi P.Eng., University of Toronto

Board 58: Work in Progress: Iron Coder: An Integrated Development Environment for Embedded Development in Rust

Carsten Monrad Thue-Bludworth, University of Florida

Dr. Jeremiah J. Blanchard, University of Florida

Board 59: Work in Progress: Streamer and Viewer Interactions in Software and Game-Development Live Streams

Ella Kokinda, Clemson University

Dr. D. Matthew Boyer, Clemson University

Board 60: Work in Progress: Student Perspectives of

Collaborative Learning Techniques (CoLT) in Introductory Computing Classes

Dr. Lisa Cullington, Sacred Heart University

Mary V. Villani, Farmingdale State College, SUNY, New York

Dr. Nur Dean, Farmingdale State College, SUNY, New York

Dr. Moaath Alrajab, Farmingdale State College, SUNY, New York

Dr. Arthur Hoskey, Farmingdale State College SUNY, New York

Dr. Ilknur Aydin, Farmingdale State College, SUNY, New York

Board 61: Work in Progress: Teaching Logic Design with Interactive Computer Games

Mr. Arnav Ketineni, Portland State University

Mr. Hrithik Ketineni

Kyle Liu, Portland State University

Marek Perkowski, Portland State University

Board 62: Work in Progress: A Comparative Analysis of Large Language Models and NLP Algorithms to Enhance Student Reflection Summaries

Dr. Ahmed Ashraf Butt, Carnegie Mellon University

Eesha Tur Razia Babar, University of California, Irvine

Dr. Muhsin Menekse, Purdue University, West Lafayette

Ali Alhaddad, Purdue University, West Lafayette

Board 63: Work in Progress: Community College Student Experiences with Interdisciplinary Computing Modules in Introductory Biology and Statistics Courses

Dr. Valerie A. Carr, San Jose State University

Jennifer Avena, University of Northern Colorado

Dr. Maureen Smith

Dr. Wendy Lee, San Jose State University

Dr. David Schuster, San Jose State University

Dr. Belle Wei, San Jose State University

Board 64: Work in Progress: A Scoping Review of Technology Acceptance and Adoption among Engineering Students

Deborah Moyaki, University of Georgia

Deborah Gbemisola Fabiyi, Washington State University

Dr. Nathaniel Hunsu, University of Georgia

Board 439: Work in Progress: Notebook: An AI-Based Personalized Learning Resource Tool

Dr. Quintana (Quincy) Clark, Oregon State University

Chidinma Grace Okoye

Theodore Ja

M209 - Construction Engineering Division (CONST) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Board 65: Application of LiDAR Technology in Construction Education (Case Study: Estimating Course)

Dr. Farzam S. Maleki P.E., Wentworth Institute of Technology

Board 66: Impact of ChatGPT on Student Writing in Construction Management: A Study of Applied Risks

Dr. Tianjiao Zhao, East Carolina University

Dr. George C. Wang P.E., East Carolina University

Ron Chance, East Carolina University

Chelsea Rebecca Buckhalter, East Carolina University

M213 - Design in Engineering Education Division (DEED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Board 67: Implementation and Impact of Design in Higher Engineering Education: A Comprehensive Investigation of the UK Region

Ms. Yuwei Deng, King's College London

Prof. Wei Liu, King's College London

Claire Lucas

Board 68: Integration of Learning by Evaluating (LbE) within the 5E Instructional Model in Engineering-Design Education

Dr. Wonki Lee, Purdue University

Prof. Nathan Mentzer, Purdue University

Amiah Clevenger

Dr. Andrew Jackson, University of Georgia

Dr. Scott Bartholomew, Brigham Young University

Board 69: Learning Sustainable Development Through Integrative Design Process (a Case Study)

Dr. Xi Wang, Drexel University

Kathleen M. Short

Dr. Christine Marie Fiori

Board 70: Redesigning a Capstone Course with Product

Design in Mind: A Work in Progress

Prof. Annie Abell, Ohio State University

Dan Wisniewski, The Ohio State University

Board 71: Work in Progress: Creation of Teaching Materials to Support Identification of Authentic Needs that Inform Engineering-Design Projects

Dr. Ann Saterbak, Duke University

Mr. Paul James Fearis

Eric Stephen Richardson, Duke University

Dr. Martin A. Brooke, Duke University

Harris Solomon, Duke University

M214 - Educational Research and Methods Division (ERM) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Board 72: Adaptive Affect-Aware Multimodal Learning Assessment System for Optimal Educational Interventions

Mr. Andres Gabriel Gomez, University of Florida

Dr. Catia S. Silva, University of Florida

Board 73: AI Skills-based Assessment Tool for Identifying Partial and Full-Mastery within Large Engineering Classrooms

Mr. Amirreza Mehrabi, Purdue University

Dr. Jason Morphew, Purdue University

Board 74: Are All Engineers Brilliant White Men? What Television Tells Us About Engineers

Dr. Amy Kramer, The Ohio State University

Board 75: Can Small Changes in Course Structure in Early Engineering Coursework Have a Big Impact on Retention?

Dr. Laine Schrewe Ph.D., Otterbein University

Dr. Elena Joy Caruthers, Otterbein University

Board 76: Expansion of Peer Tutoring Program to In-Class Sessions in Multiple Disciplines

Dr. Cara J. Poor P.E., University of Portland

Board 77: Exploring the Relationship between Item Stability and Item Characteristics: Exploratory Graph Analysis

Chia-Lin Tsai, University of Northern Colorado

Dr. Lisa Y. Flores, University of Missouri, Columbia

Dr. Rachel L. Navarro, University of North Dakota

Dr. Pat Garriott

Han Na Suh, Georgia State University - Perimeter College

Dr. Sarah Lynn Orton P.E., University of Missouri, Columbia

Board 78: How Do Grades Matter? A Work in Progress Study on the Influence of Grades on Engineering Students' Motivation & Decision Making

Dr. Cassie Wallwey, Virginia Polytechnic Institute and State University

Dr. Michelle Soledad, Virginia Polytechnic Institute and State University

Dr. Tyler Milburn, Virginia Polytechnic Institute and State University

Board 79: Leveraging Learning Styles for Enhanced Student Outcomes: A Study at a New York University

Major Brittany Leigh Oletti, United States Military Academy

Board 80: Nontraditional Students in Engineering: Persona Development

Alanis Chew, Youngstown State University

Dr. Cory Brozina, Youngstown State University

Board 81: Utilizing Student Observers to Boost Teaching Effectiveness and Evaluation

Dr. Emad A. Mansour, University of South Florida

Dr. Chris S. Ferekides, University of South Florida

Board 82: Work in Progress: Examination of Video Demonstrations as an Alternate Content-Delivery Method

Mr. Kevin E. Wandke, University of Illinois Urbana-Champaign

Dr. Christopher D. Schmitz, University of Illinois Urbana-Champaign

Prof. Jonathon Kenneth Schuh, University of Illinois Urbana-Champaign

Yang Victoria Shao, University of Illinois Urbana-Champaign

M215 - Electrical and Computer Engineering Division (ECE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

This session will feature a diverse array of posters covering educational research and experiences in the fields of electrical and computer engineering. Attendees will have the opportunity to engage directly with the researchers through Q&A and live demonstrations.

Board 83: Work in Progress: The Magic Orb: A Mechatronics Demonstration and Course Project to Attract Next-generation Engineering Students

Dr. Ruoshi Zhang, University of Louisville

Nathan George, University of Louisville

Prof. Dan O. Popa, University of Louisville

Board 84: A Teamwork-based Electrical & Computer Engineering Introductory Lab Course

Dr. Ying Lin, Western Washington University

Prof. Todd D. Morton, Western Washington University

Mr. Steven Christopher Schoeneck, Western Washington University

Board 85: Work in Progress: Asset-Driven Equitable Partnerships (ADEP in Practice)

Dr. Kenneth A. Connor, Inclusive Engineering Consortium & Rensselaer Polytechnic Institute

Dr. Mohamed F. Chouikha, Prairie View A&M University

Dr. John C. Kelly Jr., North Carolina A&T State University

Dr. Pamela Leigh-Mack, Virginia State University

Dr. Barry J. Sullivan, Electrical & Computer Engineering Department Heads Assn

Elizabeth Hibbler, Conference for Industry and Education Collaboration

Dr. Stephen M. Goodnick, Arizona State University

Prof. Miguel Velez-Reyes, University of Texas at El Paso

John Janowiak

Tymia Wilson

Michelle Klein, Electrical and Computer Engineering Dept. Heads Assoc.

Prof. Truong Nguyen, University of California, San Diego

Prof. Petru Andrei, Florida A&M University; Florida State University

Prof. Shayla Sawyer

Dr. Esther T. Ososanya, University of the District of Columbia

David Zubia, University of Texas at El Paso

Dr. Raziq Yaqub

Prof. Wayne A Scales, Virginia Polytechnic Institute and State University

Milford Muskett

Board 86: Teaching Ethics in an Electrical Engineering Program

Dr. Cyrus Habibi, University of Wisconsin, Platteville

Adama Sawadogo, University of Wisconsin, Platteville

Board 87: Work in Progress: The 2TO4 Project - Facilitated Transition from 2-Year to 4-Year Electrical and Computer Engineering Studies

Dr. Kenneth A. Connor, Inclusive Engineering Consortium & Rensselaer Polytechnic Institute

Dr. Mohamed F. Chouikha, Prairie View A&M University

Prof. Miguel Velez-Reyes, University of Texas at El Paso

Dr. Barry J. Sullivan, Electrical & Computer Engineering Department Heads Assn

Elizabeth Hibbler, Conference for Industry and Education Collaboration

Dr. Bruk T. Berhane, Florida International University

Michelle Klein, Electrical and Computer Engineering Dept. Heads Assoc.

Dr. Charles McCurry

Dr. Kathy Ann Gullie

Dr. Dean T. Spaulding

Milford Muskett

Board 88: Visual Representation Based Creative Problem Solving (CPS) for Microelectronic Course

Prof. Gon Namkoong, Old Dominion University

Tian Luo, Old Dominion University

Board 89: Work in Progress: Promoting Undergraduate Student Success through Faculty Mentoring in Engineering Education

Dr. Juan Alvarez, University of Illinois Urbana-Champaign

Dr. Olga Mironenko, University of Illinois Urbana-Champaign

Yang Victoria Shao, University of Illinois Urbana-Champaign

Board 90: Work in Progress: Response to Failure and Success in an ECE Course

Jennifer Cromley, University of Illinois Urbana-Champaign

Jessica R. Gladstone, University of Illinois Urbana-Champaign

Dr. Juan Alvarez, University of Illinois Urbana-Champaign

Zhengyan Ye, University of Illinois Urbana-Champaign

Parth Shastri, University of Illinois Urbana-Champaign

Aizhan Daukenova, University of Illinois Urbana-Champaign

Shiyu Sun, University of Illinois Urbana-Champaign

Board 91: Work in Progress: An Interdisciplinary Subject on Hardware Accelerated Computing

Dr. Glenn J. Bradford, University of Melbourne

Prof. Gavin Buskes, The University of Melbourne

Dr. Paul N. Beuchat, The University of Melbourne

Board 92: Work in Progress: Developing an Application to Optimize Student Group Formation for Enhancing Inclusivity and Collaborative Learning

Dr. Zulal Sevkli, Miami University

Mr. Hunter Jarrod Hicks, Miami University

John Brandabur, Miami University

Andrew Philibin, Miami University

Board 93: Work in Progress: Developing an Engineering Asset-Management Course at an Electrical Engineering Program

Dr. Selma Awadallah, Texas A&M University at Qatar

Mohammad AlShaikh Saleh, Texas A&M University at Qatar

Adel Mohamed, Texas A&M University at Qatar

Board 94: Work in Progress: Development of Lab-Based Assessment Tools to Gauge Undergraduates' Circuit Debugging Skills and Performance

Andrew J. Ash, Oklahoma State University

Dr. Jennifer Dawn Cribbs, Oklahoma State University

Dr. John Hu, Oklahoma State University

Board 95: Work in Progress: Implementation of Rapid Review as Formative Assessment in a Circuits Course

Dr. Jennifer L. Bonniwell, Milwaukee School of Engineering

Dr. Richard W. Kelnhofer, Milwaukee School of Engineering

Board 96: Work in Progress: Incorporating Active Learning into a Random Signal Analysis Course

Dr. Chao Wang, Arizona State University

Board 97: Work-in-Progress: TextCraft: Automated Resource Recommendation for Custom Textbook Creation

Xinyuan Fan, University of Toronto

Dr. Hamid S. Timorabadi P.Eng., University of Toronto

Prof. Salma Emara, University of Toronto

Board 440: Effect of Reflection Exercises on Preparation for Exams: A Case Study in an ECE Machine Learning Class

Dr. Ahmed Dallal, University of Pittsburgh

M216 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Board 98: Engineering Education Curriculum Needs for Achieving Sustainable Energy and Decarbonize Economy

Prof. Mansour Zenouzi, Wentworth Institute of Technology

Prof. John Peter Voccio, Wentworth Institute of Technology

Board 99: Utilizing the Solar District Cup Competition as a Case Study for a Renewable Energy Capstone to Enhance Students' Learning Experience

Dr. Jin Ho Jo, Illinois State University

Gabrielle Grace Hershey, Illinois State University

Daniel Patrick Gibson

Board 442: Data-driven Approach to Problem Solving in Renewable Energy and Engineering Education

Dr. Mohammad Abu Rafe Biswas, The University of Texas at Tyler

Dr. Aaditya Khanal, The University of Texas at Tyler

Prabha Sundaravadivel, The University of Texas at Tyler

M218 - Engineering Design Graphics Division (EDGD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Engineering Design Graphics Division (EDGD)

Board 100: Work in Progress: Creating Human-centered Building Design Curriculum: Understanding the Health Impacts of Active, Collaborative Learning - An Analysis Using CFD and GD-BIM in an Existing Classroom with Discussion Tables

Mr. Simon Zhang, University of Illinois Urbana-Champaign

Dr. Molly H. Goldstein, University of Illinois Urbana-Champaign

Mahdi Azizi, University of Illinois Urbana-Champaign

Amir Malvandi, University of Illinois Urbana-Champaign

Prof. Yuanhui Zhang, University of Illinois Urbana-Champaign

M220 - Engineering Ethics Division (ETHICS) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Board 101: Compassion and Engineering Ethics: Validation of the Compassionate Engagement and Action Scales for the Engineering Education Context

Mr. Cristian Eduardo Vargas-Ordonez P.E., Purdue University, West Lafayette

Manuel José Alejandro Baquero Sierra, Purdue University, West Lafayette

Dr. Michael Robinson, Saint Vincent College

Jacqueline Rose Tawney, California Institute of Technology

Dr. Morgan M. Hynes, Purdue University, West Lafayette

M221 - Engineering Libraries Division (ELD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Christina Mayberry, University of California, San Diego

Board 102: Crafting a Library on Belonging in Engineering: An Initial Review Using Textual Analysis

Ms. Denise Amanda Wetzel, Pennsylvania State University

Sara C. Kern, Pennsylvania State University

Board 103: Developing a User Experience Study (Work in Progress)

James M. Cox, The University of Iowa

Ms. Kari Kozak, The University of Iowa

Board 104: Using "Micro" Approaches to Prepare Engineering Technology and Business Students for the Informed Workplace

Prof. Margaret Phillips, Purdue University, West Lafayette

Heather Howard, Purdue University Library TSS

Mr. David A. Zwicky, Purdue University, West Lafayette

Dr. Frederick C. Berry, Purdue University, West Lafayette

M222 - Engineering Management Division (EMD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Board 105: Proposed Pedagogy in Teaching Linear Programming

Dr. Sima Parisay, California State Polytechnic University, Pomona

M223 - Engineering Technology Division (ETD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Board 106: A Student Experiential Learning Program: An Interdisciplinary Approach to Sustainability

Dr. Vassilios Tzouanas, University of Houston

Dr. Lisa Deane Morano, University of Houston

Board 107: Emergency Sun-Tracking Solar Generator

Mr. Esteban Andres Garcia, New Jersey Institute of Technology

Joseph Trapani, New Jersey Institute of Technology

Bobby Emmanuel-Okafor

Frank Fenner, New Jersey Institute of Technology

Milad Shojaee, New Jersey Institute of Technology

Alex Blinder

Dr. Mohsen Azizi, New Jersey Institute of Technology

Board 108: Low-Cost Hardware-in-the-Loop Real-Time Simulation Platform

Aaron Fan, New Jersey Institute of Technology

Milad Shojaee, New Jersey Institute of Technology

Dr. Mohsen Azizi, New Jersey Institute of Technology

Board 109: Moving Towards a Fully On-line Laboratory in Electric Circuits Course

Prof. Robert De La Coromoto Koeneke, Daytona State College

Mr. Al Rahrooh, University of California, Los Angeles

Dr. Alireza Rahrooh, Daytona State College

Board 110: Portable Solar-Powered Wireless Display Board

Gian Carlo Fuentes, New Jersey Institute of Technology

Jonathan Mike Milov, New Jersey Institute of Technology

Truong Vu Do

James Steven Garcia

Milad Shojaee

Alex Blinder

Dr. Mohsen Azizi, New Jersey Institute of Technology

Board 111: Transformative Approach of Engineering Technology Curricula Based on Sustainability, Systems Thinking, Creativity, and Alignment with Industry Needs

Dr. Irina Nicoleta Ciobanescu Husanu, Drexel University

Dr. Yalcin Ertekin, Drexel University

M224 - Entrepreneurship & Engineering Innovation Division (ENT) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Board 112: Work in Progress: Exploring the Impact of International Experiences on the Development of Students' Entrepreneurial Mindset

Dr. Olgha Bassam Qaqish, North Carolina State University

Dr. Marcia Pool, University of Illinois Urbana-Champaign

Mr. William Pennock, New Jersey Institute of Technology

Prof. Erick S. Vasquez-Guardado, University of Dayton

Fahmidah Ummul Ashraf, Bradley University

M225 - Environmental Engineering Division (ENVIRON) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Board 113: Green Roof Rehabilitation: Creating Community in the School of Engineering

Dr. Cara J. Poor P.E., University of Portland

Jackson Kaye, University of Portland

M229 - Industrial Engineering Division (IND) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Board 129: Preparing Engineering Students for Designing and Managing the Future of Work and Work Systems

Dr. Priyadarshini Pennathur, University of Texas at El Paso

Dr. Arunkumar Pennathur, The University of Texas at El Paso

Dr. Amirmasoud Momenipour, Rose-Hulman Institute of Technology

M232 - International Division (INTL) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Poster Session

Board 130: An International, Bilingual Engineering Design Course: Faculty/Student Experiences and Lessons Learned

Dr. Jorge Ivan Rodriguez-Devora, University of Georgia

David Emory Stooksbury, University of Georgia

Dr. John Ray Morelock, University of Georgia

Dr. Sonia J. Garcia, University of Georgia

Animesh Paul, University of Georgia

Deborah Moyaki, University of Georgia

Board 131: Challenges and Innovative Strategies in International Student Education

Mr. Fanyu F. Zeng, Indiana Wesleyan University

M233 - Pre-College Engineering Education Division (PCEE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Board 145: Development of Air Quality Assessment Activities Using a Coding-Based Microcontroller for an After-School STEM Program (Work in Progress)

Dr. Jin Ho Jo

Dr. Matt Aldeman, Illinois State University

Jeritt Williams, Illinois State University

Allison Antink-Meyer, Illinois State University

Board 146: Enhancing STEM Education through Engaging Summer Programs: A Multi-Faceted Strategy

Tala Katbeh, Texas A&M University

Mr. Gerald Benjamin Cieslinski, Texas A&M University at Qatar

Hassan Said Bazzi, Texas A&M University at Qatar

Syed Mustafa Husain Abidi, Texas A&M University at Qatar

Board 147: Innovative Advances: Triboelectric Nanogenerators Powering Pacemakers: A High School Student Review

Joanna Li

Prof. Haifeng Wang, Penn State University

Board 148: Ongoing Evaluation of Pre-College Students' Learning Outcomes During a Human-Centered Engineering Design Summer Camp

Mr. Justin Kota Shell, University of Illinois Urbana-Champaign

Vatsal Tapiawala, University of Illinois Urbana-Champaign

Miss Taylor Tucker Parks, University of Illinois Urbana-Champaign

Mr. Saadeddine Shehab, University of Illinois Urbana-Champaign

Board 149: Pioneering Pathways for High School Students in STEM Education (Work in Progress)

Mr. Adam W. Davidson, Duke University

Mr. Kip D. Coonley, Duke University

Board 150: Systematic Review of the Design Fixation Phenomenon at the K-12 Engineering Education (Other)

Mr. Sopheak Seng, Purdue University, West Lafayette

Board 151: Utilizing African-Centered STEM Education to Inspire African-American Participation in STEM

Dr. DeAnna Bailey, Morgan State University

Mr. Baba Amin Imamu Ojuok, The Uhuru Academy

Tamara Altman, Impact Allies

Charnee Bowens, Morgan State University

Prof. Kevin Kornegay, Morgan State University

Dr. Kofi Nyarko, Morgan State University

Dr. James Holly, Jr., University of Michigan

Board 152: Utilizing Culturally Responsive Teaching Strategies to Enhance the Learning of African-American Middle School Girls in Cybersecurity

Dr. DeAnna Bailey, Morgan State University

Dr. Karen Gareis, Goodman Research Group, Inc.

Charnee Bowens, Morgan State University

Mrs. LaDawn Partlow, Morgan State University

Dr. Michel A. Kornegay, Morgan State University

Prof. Kevin Kornegay, Morgan State University

Board 153: Assessment of K-12 Students' Microelectronics Understanding and Awareness (Work in Progress)

Rachel E. Gehr, Purdue University, West Lafayette

Prof. Tamara J. Moore, Purdue University, West Lafayette

Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Board 154: Broadening Participation and the Mission of Engineering for US All: A Case Study of Engineering in a Classroom Serving Students with Disabilities (Work in Progress)

Dr. Jennifer Lee Kouo, The Johns Hopkins University

Jeanette Chipps, The Johns Hopkins University

Ms. Rachel Figard, Arizona State University

Board 155: Computing Faculty Introducing Secondary Students to Differences in Computing Fields (Work in Progress)

Dr. Matthew Perkins Coppola, Purdue University, Fort Wayne

Dr. Beomjin Kim

Guoping Wang, Purdue University, Fort Wayne

Michelle Rene Parker

Thomas John Bolinger, Purdue University, Fort Wayne

Board 156: Curricular-Modules Development Based on Summer Research Experiences for Teachers on Solar Energy (Work in Progress)

Daniel Garza

Mr. Cory Andrew Scarborough

Lovekesh Singh, Texas A&M University, Kingsville

Marsha Sowell, Texas A&M University, Kingsville

Dr. Mohammad Motaher Hossain, Texas A&M University, Kingsville

Board 157: Design of a Geospatial Skills Camp for Rural Youth (Work in Progress)

Dr. Jeanette Chipps, Montana State University

Suzanne G. Taylor, Montana State University

Dr. Nicholas Lux, Montana State University

Elizabeth Nelson, Montana State University

Board 158: Design, Fabrication, and Testing of Lego-neered Vertical Flight Dynamic Systems: Using Custom Lego Models to Inspire the Next Generation of Innovators (Work in Progress)

Mr. Alex Richard Duffy, Penn State University

Edward C. Smith, Pennsylvania State University

Board 159: Development and Initial Findings of a Summative Assessment for High School Engineering Course (Evaluation, Work in Progress)

Dr. Jeanette Chipps, The Johns Hopkins University

Dr. Stacy S. Klein-Gardner, Vanderbilt University

Jim Muscarella

Dr. Cathy P. Lachapelle, STEM Education Insights

Sabina Anne Schill, Colorado School of Mines

Board 160: Empowerment in STEM Day: Introducing High School Girls to Careers at National Laboratories (Work in Progress)

Dr. Baishakhi Bose, Lawrence Berkeley National Laboratory

Lydia Rachbauer, Lawrence Berkeley National Laboratory

Elina Dluger Rios

Dr. Faith Marie Dukes, Lawrence Berkeley National Laboratory

Board 161: Engineering Community Inclusion of Individuals with Autism (ECIIA): The Commitment of Community Collaborators in Engineering Education and Industry (Work in Progress)

Dr. Jennifer Lee Kouo, The Johns Hopkins University

Jeanette Chipps, The Johns Hopkins University

Board 162: Engineering for Accessibility: Impacts of a High School Engineering Internship Model Across Different Settings (Work in Progress, DEI)

Dr. Stacey Forsyth, University of Colorado Boulder

Tim Ogino, University of Colorado Boulder

Ms. Angelina Ong M.A., J. Sickler Consulting

Jessica Sickler, J. Sickler Consulting

Board 163: Examining Teachers' Enactment of Engineering-focused Design Principles Using Action, Speech, and Gestures in Elementary Settings (Work in Progress)

Dr. Amelia Yeo, Nanyang Technological University

Dr. Ibrahim H. Yeter, Nanyang Technological University

Ms. Sharyn Anastasia Limas, Nanyang Technological University

Board 164: Exploring Coaches' Use of Engineering Notebooks in the FIRST LEGO League Challenge Robotics Competition (Work in Progress)

Mr. Michael Graffin, Curtin University of Technology

Rachel Sarah Sheffield, Curtin University of Technology

Rekha Bhan Koul

Board 165: K-12 STEM Teachers' Perceptions of Artificial Intelligence: A PRISMA-tic Approach (Work-in-Progress)

Mr. Daniel Loke, Nanyang Technological University

Jeffrey D. Radloff, SUNY, Cortland

Dr. Ibrahim H. Yeter, Nanyang Technological University

Board 166: Perceptions of Hands-on High School Education Alumni on their Preparation for Engineering (Work in Progress)

Dylan E. Higgins, Tufts University

Dr. Milo Koretsky, Tufts University

Board 167: Pre-College Engineering: Perspectives of Engineering Faculty (Work in Progress)

Natasha Lagoudas Wilkerson, Texas A&M University

Joanne K. Olson, Texas A&M University

Board 168: Preliminary Design of an Engineering Case Study for Elementary Students (Work in Progress)

Latanya Robinson, Florida International University

Dr. Alexandra Coso Strong, Florida International University

Board 169: Purposefully Designing Integrated STEM Learning Experiences within Elementary Teacher Education (Work in Progress)

Dr. Ursula Nguyen, University of Nebraska, Lincoln

Deepika Menon, University of Nebraska, Lincoln

Dr. Minji Jeon, University of Nebraska, Lincoln

Amanda Thomas, University of Nebraska, Lincoln

Board 170: STEM-ulating Change: Exploring Pre-Service Teachers' Perceptions of Integrated STEM Education (Work-in-Progress)

Dr. Ibrahim H. Yeter, Nanyang Technological University

Xue Jia Xie, Singapore University of Technology and Design

Jeffrey D. Radloff, The State University of New York at Cortland

Michael Jin Khoo

Board 171: The Design of a Course to Train STEM Pre-Service Teachers (Work-in-Progress)

Dr. Garth V. Crosby, Texas A&M University

Dr. Maram H. Alaqra, Sharjah Education Academy

Pamela Simmons-Brooks, Texas A&M University

Miss Morgan H. Krauss, Texas A&M University

Ms. Shelly Tornquist, Texas A&M University

Dr. Bugrahan Yalvac, Texas A&M University

M234 - Liberal Education/ Engineering & Society Division (LEES) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

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

Board 132: Exploring the Impact of Professors and Peer-Relationships on Undergraduate Mechanical Engineering Students' Well-Being

Emily Nicole Fitzpatrick, University of Nebraska, Lincoln

Dr. Jessica Deters, University of Nebraska, Lincoln

Isabel Adams

Board 133: Work in Progress - A Pilot Course on Effective and Enduring Advocacy: Leading with Compassion in STEM

Jacqueline Rose Tawney, California Institute of Technology

Yazmin Gonzalez

Meredith Hooper, California Institute of Technology

Dr. Harly Ramsey, University of Southern California

Dr. Morgan Hooper, University of Toronto

M237 - Mathematics Division (MATH) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Board 134: MATLAB Integration in Sophomore Mathematical Analysis Course

Dr. Djedjiga Belfadel, Fairfield University

M238 - Mechanical Engineering Division (MECH) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

This session highlights interdisciplinary approaches and innovations in engineering education. Topics include integrating material science with other engineering courses, convergence in robotics and autonomous systems, promoting sustainable innovation through mechatronics and collaborative projects, fostering design-thinking abilities in undergraduates, and the ongoing curriculum-renewal process at Ohio State University.

Board 135: Connection of the Teaching, Learning and Instructions of Material Science and Engineering Courses with Different Courses on Engineering Subjects

Prof. Jiliang Li, D.Eng., Ph.D., P.E., California Baptist University

Dr. Jinyuan Zhai, Minnesota State University, Mankato

Board 136: Design-Thinking Abilities in Undergraduate Mechanical Engineering Students

Maeve Bakic, Boise State University

Samantha Schauer, Boise State University

Dr. Krishna Pakala, Boise State University

Board 137: Interdisciplinary Convergence in Robotics and Autonomous Systems

Dr. Prashanta Dutta, Washington State University

Dr. Soobin Seo, Washington State University

Tahira M. Probst, Washington State University

Joseph M. Hewa, Washington State University

Board 138: Promoting Sustainable Innovation: Mechatronics and Collaborative Student Projects with Campus Sustainability Centers

Dr. Jheng-Wun Su, Slippery Rock University

Cameron Casey Constantine, Slippery Rock University

Board 139: Work in Progress: Mechanical Engineering Curriculum Renewal Process at a Ohio State University

Prof. Sandra Anstaett Metzler P.E., The Ohio State University

Prof. Annie Abell, The Ohio State University

M240 - Minorities in Engineering Division(MIND) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Board 140: Towards Servingness-Oriented Mentorship

Mr. Christian Glandorf, New Mexico State University

Dr. Sandra M. Way, New Mexico State University

Dr. Catherine Brewer, New Mexico State University

Dr. Wendy Chi, ABC Research & Evaluation

Paulette Vincent-Ruz, New Mexico State University

M241 - Multidisciplinary Engineering Division (MULTI) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Board 141: Incorporating Sustainability into Engineering Curriculum Through Project-Based Learning (PBL)

Dr. Aaditya Khanal, The University of Texas at Tyler

Prabha Sundaravadivel, The University of Texas at Tyler

Dr. Mohammad Abu Rafe Biswas, The University of Texas at Tyler

Board 142: Work in Progress: Engaging STEM Students in Revising Technical Writing Assignments

Johanna Bodenhamer, Indiana University-Purdue University Indianapolis

Dr. Corinne C. Renguette, Indiana University-Purdue University Indianapolis

Dr. Robert Weissbach, Indiana University-Purdue University Indianapolis

Dr. Brandon Sorge, Indiana University-Purdue University Indianapolis

Board 143: Work in Progress: Mind and Computer: Integration of Brain-Computer Interfaces in Engineering Curricula

Dr. Roya Salehzadeh, Lawrence Technological University

Dr. James A. Mynderse, Lawrence Technological University

Board 144: Work-in-Progress: A Course Collaboration Between Chemical Engineering and Mechanical Engineering

Ms. Malgorzata Chwatko, University of Kentucky

Dr. Hari Charan Ghimire, University of Kentucky

Huayi Li, University of Kentucky

Dr. Madhav Baral, University of Kentucky

Dr. John Franklin Maddox

Hyun-Tae Hwang, University of Kentucky

Dr. Gisella R. Lamas Samanamud, University of Kentucky

M247 - Student Division (STDT) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Xingchen (Stars) Xu, Arizona State University, Polytechnic Campus; Nolgie Oquendo-Colón, University of Michigan

Board 172: Engineering Electromagnetics Laboratory Development

Miss Narangoo Tumur, Southern Illinois University, Edwardsville

Dr. Amardeep Kaur, Southern Illinois University, Edwardsville

Board 173: Fostering Community of Practive (CoP): The Impact on Self-Efficacy and Belonging of Undergraduate Students

Vivian H. Nguyen, City Colleges of Chicago

Anthony Jesus Blanco, City Colleges of Chicago

Andrew Steppan, City Colleges of Chicago

Juan Munoz, City Colleges of Chicago

Guadalupe Pina-Castillo, City Colleges of Chicago

Shlesha Patel, City Colleges of Chicago

Melvin Cabrera, City Colleges of Chicago

Tobias Wimmer

Dr. Doris J. Espiritu, City Colleges of Chicago

Board 174: Fostering Inclusivity and Engagement While Learning by Doing: A New Paradigm in Engineering Education Based on Student-Designed, Student-Taught Courses

Mr. Eliot Nathaniel Wachtel, University of California, Santa Cruz

Mr. Qingyuan Cao, University of California, Santa Cruz

Mr. Matthew Kaltman, University of California, Santa Cruz

Mr. Khanh Tran, University of California, Santa Cruz

Miguel Robles Hernandez, University of California, Santa Cruz

Dr. Tela Favaloro, University of California, Santa Cruz

Board 175: Poster: Strategies for Empathy Instruction and Assessment in Biomedical Engineering Education: A Review

Tahlia Altgold, The Ohio State University

Board 176: Work in Progress: Case Study of Factors Affecting Reverse-Transfer Students' Degree Completion

Perla Abigail Bran, City Colleges of Chicago

Casey Mikaela Tan, City Colleges of Chicago

Jason Kwame Frimpong Osei-Tutu, City Colleges of Chicago

Mr. Luis Vicente Villanueva, City Colleges of Chicago

Ms. Brenda Najjuma, City Colleges of Chicago

Dr. Doris J. Espiritu, City Colleges of Chicago

Board 177: Work in Progress: The Development of a Research-Based Application for Effective Mentor-Mentee Matching

Alondra Gonzalez Quintana, City Colleges of Chicago

Alexis Alvarez, City Colleges of Chicago

Amara Moreno, City Colleges of Chicago

Alessandra Romero, City Colleges of Chicago

Lourdes Beatriz Johnson, City Colleges of Chicago

Bohan Ren, City Colleges of Chicago

Kendrit Tahiraj, City Colleges of Chicago

Anthony Jesus Huerta, City Colleges of Chicago

Dr. Doris J. Espiritu, City Colleges of Chicago

M249 - Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/ Philosophy of Engineering Division (TELPhE)

Board 178: Educational Infographics, A Review Paper

Asefeh Kardgar, Purdue University, West Lafayette

Dr. Anne M. Lucietto, Purdue University, West Lafayette

Dr. Jennifer Winikus, Lehigh University

M250 - Two-Year College Model Design Competition

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderators: Philip Regalbuto, Trident Technical College; Pamela Silvers, Asheville-Buncombe Technical Community College

Each student team will design and build an autonomous "Beaver Bot" robot to knock down 12 (popsicle sticks) trees and transport these sticks to either the river or pond areas of the 4' by 8' plywood play field.

A circuitous black line path (electrical tape) is provided on the play field to assist the Beaver Bot in finding the 12 trees, the river, and the pond. Each tree is held nearly upright by 3D-printed tree bases (or stumps). The robot must adhere to the rules of the model design competition which includes an exhibition session.

The objective of this competition is for students to experientially appreciate the challenges in every step of the engineering design process from start to finish. Designing and building something from an idea is probably why they chose engineering in the first place. Use this design competition as a platform to reinforce valuable classroom principles and have some engineering fun along the way!

M251 - Women in Engineering Division (WIED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Brian Kirkmeyer, Miami University

The posters in this session address campus climate, real-life narratives, language-based programs, and spatial skill development.

Board 179: Campus Climate, STEM Students: Examining Structural Obstacles for BW Student Success

Dr. Ahjah Marie Johnson, University of Cincinnati

Samieh Askarian Khanamani, University of Cincinnati

Mark Okoth Onyango, University of Cincinnati

Dr. Whitney Gaskins, University of Cincinnati

Board 180: Impacting Engineering Students' Perceptions of DEI Through Real-Life Narratives and In-Class Discussions with an Empathetic Lens

Prof. Lisa K Davids, Embry-Riddle Aeronautical University

Dr. Jeff R. Brown, Embry-Riddle Aeronautical University

Joseph Roland Keebler, Embry-Riddle Aeronautical University

Jenna Korentsides, Embry-Riddle Aeronautical University

Board 181: Work in Progress: Language-based Dual Degree Engineering Program: Increasing Women in Engineering?

Dr. Jorge Ivan Rodriguez-Devora, University of Georgia

David Emory Stooksbury, University of Georgia

Dr. Sonia J. Garcia, University of Georgia

Board 182: Work in Progress: Considering the Effect of Gender on a Latent Factor Model of the PSVT:R

Ms. Savanna Dautle, Rowan University

Dr. Stephanie Farrell, Rowan University

M252 - Community Engagement Division (COMMENG) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Board 41: Counter-Storytelling in Intergenerational STEM Experiences

Dr. Jessica Rush Leeker, University of Colorado Boulder

Marlene Sulema Palomar, University of Colorado Boulder

Lyndsay Rose Ruane, University of Colorado Boulder

M257 - Faculty Development Division (FDD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Michelle Soledad, Virginia Polytechnic Institute and State University

Board 119: Exploring Factors and Support for Effective Faculty Mentoring of Undergraduate Students in Engineering

Sarah Baka, Youngstown State University

Dr. Cory Brozina, Youngstown State University

Board 120: Lessons Learned: "I Can't Build It Because They

Won't Come": Faculty Survey Response Rates in Engineering Education Research

Dr. Rachel Ziminski, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

Board 121: Lessons Learned: Mapping and Mobilizing Faculty Assets for Creating Faculty-Development Programs in Engineering Ethics Education

Bono Po-Jen Shih, Pennsylvania State University

Dr. Sarah E. Zappe, Pennsylvania State University

Board 122: Preparing to Teach a Multi-Campus (Distributed Learning) Course

Dr. Casey James Keulen, University of British Columbia, Vancouver

Dr. Christoph Johannes Sielmann P.Eng., University of British Columbia, Vancouver

Elly Park, University of British Columbia, Vancouver

Board 123: Work in Progress: A Case Study of a Community of Practice Model Fostering Faculty Scholarship of Teaching and Learning of the Entrepreneurial Mindset

Dr. Kristen Peña, Arizona State University

Dr. Medha Dalal, Arizona State University

Prof. Jean M. Andino Ph.D., P.E., Arizona State University

Board 124: Work in Progress: A Framework to Develop Project-based Platforms to Support Engineering and Technology Education: Project Development Canvas

Mr. Casey Daniel Kidd, Louisiana Tech University

Dr. Krystal Corbett Cruse, Louisiana Tech University

Dr. Kelly B. Crittenden, Louisiana Tech University

Board 125: Work in Progress: Faculty Experiences and Learning Through Oral-Assessment Implementation in Engineering Courses

Dr. Minju Kim, University of California, San Diego

Dr. Carolyn L. Sandoval, University of California, San Diego

Josephine Relaford-Doyle, University of California, San Diego

Torus Washington II, University of California, San Diego

Dr. Saharnaz Baghdadchi, University of California, San Diego

Dr. Nathan Delson, University of California, San Deigo

Dr. Marko Lubarda, University of California, San Diego

Dr. Alex M. Phan, University of California, San Diego

Prof. Curt Schurgers, University of California, San Diego

Dr. Huihui Qi, University of California, San Diego

Board 126: Work in Progress: Investigating Faculty Development Experiences in the Context of a Teaching-focused Book Club

Marcus Melo de Lyra, The Ohio State University

Dr. Medha Dalal, Arizona State University

Dr. Kristen Peña, Arizona State University

Mrs. Jennifer Hadley Perkins, Arizona State University

Board 127: Work in Progress: Strategizing the Integration of VR and AR in STEM Education: Aligning Educational, Organizational, and Technological Strategies

Dr. Amirmasoud Momenipour, Rose-Hulman Institute of Technology

Dr. Priyadarshini Pennathur, University of Texas at El Paso

Dr. Arunkumar Pennathur, University of Texas at El Paso

Brian Boswell, Rose-Hulman Institute of Technology

Board 128: Work in Progress: Toward a Common Sci Comm Strategy

Mr. Mark Blaine, University of Oregon

Dr. Nathan Jacobs, University of Oregon

M259 - Equity, Culture & Social Justice in Education Division (EQUITY) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

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

Board 114: Amplifying Resilience and Becoming Critical Advocates: Three Black Engineering Students' Experiences in a Multi-Institutional Summer Camp Collaboration

Dr. Jae Hoon Lim, University of North Carolina

Dr. Jerry Lynn Dahlberg Jr, University of Tennessee, Space Institute

Ms. Terry L. Miller, Alabama A&M University

Corion Jeremiah Holloman, Alabama A&M University

Luke Childrey V, Alabama A&M University

Mr. Mohamed Jamil Barrie, Alabama A&M University

Board 115: Examining Engineering Students' Gender and Racial Effects in College Course Team Peer Assessment: A Quantitative Intersectional Approach

Miss Xiaping Li, University of Michigan

Dr. Robin Fowler, University of Michigan

Dr. Mark Mills, University of Michigan

Board 116: Experiences of Engineering Students with Disabilities

Isabel Miller, University of Michigan

Dr. Karin Jensen, University of Michigan

Board 117: How Could a New Educational Design Broaden

Inclusion of Higher Engineering Education in a Stratified System? Investigating the OIPI Initiative

Miss YaXuan Wen, Sino-Danish College, University of Chinese Academy of Sciences

Yanru Xu

Ji'an Liu

Board 118: Mixing it Up: A Pilot Study on the Experiences of Mixed-Race Asian-American Students in Engineering

Ms. Michelle Choi Ausman, Virginia Polytechnic Institute and State University

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

M269B - FOCUS ON EXHIBITS: Networking Break & ASEE Division Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Make connections, exchange ideas, and expand your professional circle as you connect with fellow attendees, industry experts, and thought leaders. Whether you're seeking new collaborations, brainstorming ideas, or expanding your network, this morning event can help.

M343 - ASEE General Body Meeting and Finances Town Hall

11:00 A.M. - 12:30 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: ASEE Board of Directors

ASEE General Body Meeting and Finances Town Hall

M301 - Aerospace Division (AERO) Technical Session 1

11:00 A.M. - 12:30 P.M., G129, OREGON CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Michael Hatfield, University of Alaska Fairbanks

The Role of Education in Attracting Young People as the Next Generation of Aviators: The Differences between Women and Men Students

Ashley Habig, Purdue University

Dr. Caroline K. Marete, Purdue University

Debra Henneberry, Purdue University

Cheng Wang, Minnesota State University, Mankato

A Comparative Study of the Impact of Virtual Reality on Student Learning and Satisfaction in Aerospace Education

Mollie Johnson, Massachusetts Institute of Technology

Dr. Rea Lavi, Massachusetts Institute of Technology

Prof. Olivier Ladislas de Weck, Massachusetts Institute of Technology

Dr. Prabhat Hajela, Rensselaer Polytechnic Institute

Prof. Luca Carlone, Massachusetts Institute of Technology

Siyi Hu, Massachusetts Institute of Technology

Marcus Abate, Massachusetts Institute of Technology

Zeyad Awwad, Massachusetts Institute of Technology

Mr. Yun Chang, Massachusetts Institute of Technology

WIP: Exploring the Impact of Partner Assignment on Students' Decision-Making in Collaborative Design Projects

Ms. Taylor Tucker Parks, University of Illinois at Urbana - Champaign

Prof. Timothy Bretl

Mr. Alexander Pagano, University of Illinois at Urbana - Champaign

Curriculum Needs for High Voltage Lithium Batteries in Aviation

Dr. Tracy L. Yother, Purdue University

Seongjun Ha, Purdue University

Aerospace Lunar Lander System Design - A High School Student's Independent Design Project

Dr. Adeel Khalid, Kennesaw State University

M302 - Architectural Engineering Division (ARCHE) Technical Session 1

11:00 A.M. - 12:30 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderator: Eugene Kwak, State University of New York, College of Technology at Farmingdale

A Comparison between the Different Accredited Architectural Engineering Programs through ABET and CEAB

Dr. Rachel Mosier, Oklahoma State University

Dr. Rania Al-Hammoud, MpowerU Training & Consultancy Inc.

A Continous Evaluation System for a Challenge-Based Structural Engineering Courses

Jose G. Rangel-Ramirez, Tecnologico de Monterrey

Saul E. Crespo, Tecnologico de Monterrey

Prof. Miguel X. Rodriguez-Paz, Tecnologico de Monterrey

Ing. Luis Horacio Hernandez Carrasco P.E., Tecnologico de Monterrey

Developing and Introducing a New Course on Building Façade Design

Dr. Bodhisatta Hajra, Oklahoma State University

Prof. John J. Phillips, Oklahoma State University

Integrating NACE Competencies into Architectural Engineering Curricula: A Pilot Approach for a Foundational Course

Prof. Filza H. Walters, Texas A&M University

Dr. Nadia Shuayto, Ohio Northern University

Dr. Saira Anwar, Texas A&M University

Benchmarking Architectural Engineering Capstones Part 3: Exploring Technical Studies and Integration

Dr. Ryan Solnosky P.E., Pennsylvania State University

Prof. John J. Phillips, Oklahoma State University

M303 - Engineering Education Issues Relevant to Agricultural, Biological and Ecological Engineering: Part 1

11:00 A.M. - 12:30 P.M., C125, OREGON CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Moderator: Lucie Guertault, North Carolina State University at Raleigh

This session aims to generate discussions on pedagogy and strategies that build students' capacity and understanding of the complex engineering, technical, and social issues associated with agricultural, biological, and ecological systems. Participants will be encouraged to reflect on challenges and opportunities related to these content areas and attend follow-up panel discussions (Session M403) sponsored by the division.

An Ecological Engineering (EcoE) Body of Knowledge to Support Undergraduate EcoE Education

Dr. Trisha Moore, Kansas State University

Dr. James Randall Etheridge

Glenn Thomas Dale

Sara Winnike McMillan, Iowa State University of Science and Technology

Dr. Niroj Aryal

David Austin

Theresa Thompson, Virginia Polytechnic Institute and State University

A Department-wide Approach to Student Success Based on Ecological Validation

Dr. Deepak R. Keshwani, University of Nebraska, Lincoln

Dr. Jennifer Keshwani, University of Nebraska, Lincoln

Logan Ryan Newman, University of Nebraska, Lincoln

Rachel Ibach, University of Nebraska - Lincoln

Taryn King, University of Nebraska, Lincoln

Undergraduate Level Hands-on Ecological Engineering Course with Semester-Long Project and Laboratory Exercises

Dr. Niroj Aryal, North Carolina A&T State University

Dr. Scott Osborn, University of Arkansas

Empowering Youth to Create a Healthier Future Through STEM Education About Antimicrobial Resistance

Hector Palala, University of Nebraska, Lincoln

Ms. Amber Patterson, General Motors Corp.

Amy Millmier Schmidt, University of Nebraska, Lincoln

Mara Zelt, University of Nebraska, Lincoln

Bethany Zelt, University of Nebraska, Lincoln

Andrew Stiven Ortiz Balsero, University of Nebraska, Lincoln

Maria Jose Oviedo Ventura, Cornell University

M304 - Biomedical Engineering Speed Networking

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Nicole Ramo, West Chester University; Mostafa Elsaadany, University of Arkansas

This speed networking event kicks off the Biomedical Engineering Division (BED) programming at the 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. Join new and returning members of the BED community to exchange ideas and expand your professional network.

M305A - Safety and Sustainability in the ChE Classroom

11:00 A.M. - 12:30 P.M., F152, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Jason White, University of California, Davis; Allen Hersel, Trine University

Development of an Introduction to Sustainable Engineering Course as a Chemical Engineering Elective

Dr. Heather L. Walker, University of Arkansas

Dr. Edgar C. Clausen, University of Arkansas

Dr. Keisha B. Walters, University of Arkansas

Broadening Sustainability Education in Engineering Disciplines

Dr. David R. Wagner, The University of Utah

Prof. Anthony Butterfield, The University of Utah

Dr. Douglas Schmucker P.E., The University of Utah

Navigating the Theory-to-Practice Gap: Insights from a Process Safety Education Pilot Study

Mrs. Brittany Lynn Butler-Morton, Rowan University

Cayla Ritz, Rowan University

Dr. Elif Miskioglu, Bucknell University

Dr. Cheryl A. Bodnar, Rowan University

Dr. Emily Dringenberg, The Ohio State University

Development of a Learning Module to Teach Chemical Engineering Students About Moral Reasoning in the Context of Process Safety

Prof. Adam T. Melvin, Clemson University

Michael J. Ardoline, Louisiana State University and A&M College

Analysis of the Use of SAChE Modules in Undergraduate Programs and Summary of Process Safety

Dr. Laura P. Ford, The University of Tulsa

Dr. Gary A. Aurand, Penn State University

Dr. Chris Barr, University of Michigan

Frank Bowman, University of North Dakota

Dr. Hema Ramsurn, The University of Tulsa

Dr. Janie Brennan, Washington University in St. Louis

Prof. Tracy L. Carter, Northeastern University

Dr. Kevin D. Dahm, Rowan University

Dr. Luke Landherr, Northeastern University

Dr. David L. Silverstein P.E., University of Kentucky

Dr. Stephen Ward Thiel P.E., University of Cincinnati

Dr. Bruce K. Vaughen P.E., American Institute of Chemical Engineers

Dr. Troy J. Vogel, University of Notre Dame

M305B - Chemical Engineering Division (ChED) Executive Board Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Chemical Engineering Division (ChED)

M306 - Civil Engineering Division Business Meeting

11:00 A.M. - 12:30 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Civil Engineering Division (CIVIL)

Business Meeting

M307 - College Industry Partnership Division Board Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: College Industry Partnerships Division (CIP)

Moderator: Shannon O'Donnell, Siemens Digital Industries Software

This meeting is for board members of the College Industry Partnership Division (CIPD).

M308 - The Best of Computers in Education Division (COED)

11:00 A.M. - 12:30 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderators: Mike Borowczak, University of Central Florida; Steven Barrett, University of Wyoming

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.

In a Woman's Voice: An Alternative Gamification of the Oregon Trail

Dr. John K. Estell, Ohio Northern University

Lisa Graham Robeson, Ohio Northern University

Ye Hong, Ohio Northern University

Dr. Stephany Coffman-Wolph, Ohio Northern University

A Custom Generative AI Chatbot as a Course Resource

Yutong Ai, University of Michigan

Maya Baveja, University of Michigan

Akanksha Girdhar, University of Michigan

Melina O'Dell, University of Michigan

Dr. Andrew Deorio, University of Michigan

An Initial Investigation of Design Cohesion as a IDE-based Learning Analytic for Measuring Introductory Programming Metacognition

Dr. Phyllis J. Beck, Mississippi State University

Dr. Mahnas Jean Mohammadi-Aragh, Mississippi State University

Enhancing STEM Education: Integrating Collaborative Technologies in Micro-Teaching for Pre-service Teachers

Dr. Gerald Tembrevilla, Mount Saint Vincent University

Mohosina Jabin Toma, University of British Columbia, Vancouver

Marina Milner-Bolotin, University of British Columbia, Vancouver

M309 - Virtual Design and Construction (VDC) in Construction Education

11:00 A.M. - 12:30 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Nicholas Tymvios, Bucknell University; Namhun Lee, Central Connecticut State University

Requirements and Qualifications of Emerging Construction 4.0 Job Categories

Dr. Luciana Debs, Purdue University

Alex Souza

Fernando Romero Galvao, University of Massachusetts Amherst

Review of Building Information Modeling (BIM) Education in Enhancing Students' Communication Skills

Dr. Sooin Kim, Wayne State University

Integration of Augmented Reality (AR) in Construction Management (CM) Education: Bibliometric Literature Review

Abigael Olatoyosi Oluniyi

Dr. Svetlana Olbina, Colorado State University

Drone-Driven Learning: Advancing Construction Education through UAV Integration

Dr. Hariharan Naganathan, Wentworth Institute of Technology

Jonghoon Kim, University of North Florida

Teaching Project Planning and 4D Scheduling in a Project Planning and Scheduling Course

Dr. George Okere, University of Cincinnati

Kwame B. Amoah, University of Cincinnati

M310 - Continuing Professional Development Division Board Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Continuing, Professional, and Online Education Division (CPOED)

Moderator: Octavio Heredia, Arizona State University

This meeting is for board members of the Continuing Professional Development Division (CPDD).

M313 - DISTINGUISHED LECTURE: Design Signatures: A Journey from Design Expertise to Design Awareness

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsors: Design in Engineering Education Division (DEED); Educational Research and Methods Division (ERM)

Moderator: Corey Schimpf, University at Buffalo, The State University of New York

Speaker: Dr. Cynthia J. Atman, University of Washington

What does design look like? How do designers spend their time scoping out a problem, developing alternative solutions, and evaluating their designs? Are there typical patterns of engagement in design activities that differ depending on level of design expertise? Questions such as these guided Cynthia

Atman's early research on engineering-design processes.

To address these questions, Atman worked with many colleagues to collect data from a large number of individuals ranging in expertise who solved multiple design problems. Analysis of these data provides empirical evidence that as individuals gain expertise as designers, they engage in different patterns of design behavior. In recent years, she has been focusing on ways to bring these research results into the complex process of design teaching. What ties the efforts together is the following idea: Every instance of a design process can be represented with a design signature – a tracing of design activities over time that can be represented as a timeline. These representations are effective tools for teaching undergraduate engineers to be aware of their own design processes.

In this presentation, Atman will share her "research-to-practice" journey from doing detailed, specific research on design expertise to navigating the complicated world of design teaching. She will talk about some of her detours and side paths along the way, and the amazing communities that she has had the privilege to work with. Her hope is that listeners can relate to the challenges and joys of her research-to-practice journey and/or be inspired to try out the idea of design signatures in their teaching.

M314A - Educational Research and Methods Division (ERM) Technical Session 1

11:00 A.M. - 12:30 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Natascha Buswell, University of California, Irvine

Cognitive Domain of Learning: Exploring Undergraduate Engineering Students' Understanding and Perceptions

Miss Anna Li Coffman, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Working Towards GenAI Literacy: Assessing First-Year Engineering Students' Attitudes towards, Trust in, and Ethical Opinions of ChatGPT

Dr. Campbell R. Bego, University of Louisville

Tessa Withorn, University of Louisville

Dr. Judith Danovitch, University of Louisville

Dr. Angela Thompson P.E., University of Louisville

Elisabeth Thomas, University of Louisville

Gabriel Ethan Gatsos, University of Louisville

Alvin Tran, University of Louisville

Association of Religiosity and Help-Seeking among International Students in Undergraduate Engineering Education

Maimuna Begum Kali, Florida International University

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

Investigating Undergraduate Engineering Students' Understanding and Perceptions of Affective Domain of Learning

Ms. Anna Li Coffman, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Predicting Outcomes of Aerospace and Mechanical Engineering Students via Artificial Intelligence

Dr. Angel Guillermo Ortega, University of Texas at El Paso

Dr. Meagan R. Kendall, University of Texas at El Paso

Angel Flores Abad, University of Texas at El Paso

Victor Manuel Bonilla, University of Texas at El Paso

Dr. Louis J. Everett, University of Texas at El Paso

Bridging the Gap: The Impact of Social Media on Modern Engineering Education—A Systematic Literature Review

Ms. Arianna Gabriella Tobias, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

M314B - Educational Research and Methods Division (ERM) Technical Session 27

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jorge Cristancho, Purdue Engineering Education

Assessing Design Thinking Mindset: Using Factor Analysis to Reexamine Instrument Validity

Dr. Andrew Jackson, University of Georgia

Mr. Daniel Bayah, University of Georgia

Prof. Nathan Mentzer, Purdue University

Dr. Scott Bartholomew, Brigham Young University

Mr. Scott Thorne, Purdue University

Ms. Wonki Lee, Purdue University

Does Task Complexity Matter? Event-Related Potential (ERP) Data Analysis of the Stroop Effect in Relation to Thermal Conditions

Mrs. Mehri E. Mobaraki-Omoumi, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Prof. Zahed Siddique, University of Oklahoma

Enhancing Teaching Evaluation in Engineering Education: An Exploration of the Theory of Rating

Mayar Madboly, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute and State University

Exploratory Factor Analysis of Students' Entrepreneurial Self-Efficacy: Implications for Survey Validation

Aturika Bhatnagar, New Jersey Institute of Technology

Dr. Prateek Shekhar, New Jersey Institute of Technology

Jeffrey Stransky, New Jersey Institute of Technology

Validating Assessment Instruments for Use in Engineering Education: A Primer for Conducting and Interpreting Factor Analysis

Dr. Susan L. Amato-Henderson, Michigan Technological University

Dr. Jon Sticklen, Michigan Technological University

Validity Evidence for the Sophomore Engineering Experiences Survey

Miss Fanyi Zhang, Purdue University

Dr. Beth M. Holloway, Purdue University

Prof. Eric Holloway, Purdue University

M314C - Educational Research and Methods Division (ERM) Technical Session 28

11:00 A.M. - 12:30 P.M., COLUMBIA 2 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Lucas Wiese, Purdue University at West Lafayette (PPI)

Contradicting Objects: An Activity Systems Perspective Towards Transformative Learning

Dr. Lorena S. Grundy, Tufts University

Dr. Milo Koretsky, Tufts University

Identifying Curriculum Factors that Facilitate Lifelong Learning in Alumni Career Trajectories: Stage 3 of a Sequential Mixed-Methods Study

Nikita Dawe, University of Toronto

Amy Bilton, University of Toronto

Ms. Lisa Romkey, University of Toronto

Reimagining Behavioral Analysis in Engineering Education: A Theoretical Exploration of Reasoned Action Approach

Mr. Mitchell Gerhardt, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute and State University

Dr. Emily Dringenberg, The Ohio State University

Dr. Benjamin Ahn, The Ohio State University

Student Staff in a University STEM Makerspace Reason for Entering Makerspace—Past, Present, and Future

Elisa Koolman, University of Texas at Austin

Audrey Boklage, University of Texas at Austin

Teaching Online Engineering: A Systematic Literature Review

Youla Ali, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Understanding the Skills and Knowledge Emphasized in Undergraduate Industrial Engineering Courses

Berenice A. Cabrera, University of Michigan

Shannon M. Clancy, University of Michigan

Vibhavari Vempala, University of Michigan

Dr. Jingfeng Wu, University of Michigan

Dr. Erika Mosyjowski, University of Michigan

Dr. Lisa R. Lattuca, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Dr. Shanna R. Daly, University of Michigan

M314D - FIE Steering Committee: Open Session

11:00 A.M. - 12:30 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Educational Research and Methods Division (ERM)

Academia-Industry Connections, Advocacy and Policy, Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College

M315 - Innovative Laboratory Approaches in ECE Education

11:00 A.M. - 12:30 P.M., E148, OREGON CONVENTION CENTER

Sponsors: Electrical and Computer Engineering Division (ECE); Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderators: Brian Faulkner, Milwaukee School of Engineering; Ying Lin, Western Washington University

This session presents papers on low-cost platforms, teaching digital electronics, and agile model-based systems engineering for laboratory courses.

A Low-Cost Platform for Teaching Real-Time Digital Signal Processing

Dr. Joseph P. Hoffbeck, University of Portland

A Trilogy for Teaching and Learning Digital Electronics and Microprocessors

Prof. Wei-Jer (Peter) Han, Virginia Polytechnic Institute and State University

Agile Model-Based Systems Engineering Framework to Design a Laboratory Course—Case Study: An Embedded Systems Laboratory Course

Mr. Kishore Kumar Kadari, University of South Florida

Dr. Wilfrido A. Moreno P.E., University of South Florida

Luis Miguel Quevedo, IEEE Educational Activities

An Innovative Approach for Teaching Some Concepts of Digital Design Laboratory Course in 2+2 Program Using a Portable Laboratory Instrumentation

Dr. Neda Bazyar Shourabi, Pennsylvania State University, York

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Comparative Study of Digital Electronics Learning: Using PCB versus Traditional Methods in an Experiment-Centered Pedagogy (ECP) Approach for Engineering Students

Mr. Ojonugwa Oluwafemi Ejiga Peter, Morgan State University

Oluwapemiisin Gbemisola Akingbola, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Md Mahmudur Rahman, Morgan State University

Dr. Neda Bazyar Shourabi, Pennsylvania State University, York

Dr. Lynford Goddard, University of Illinois at Urbana - Champaign

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

M316 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 1

11:00 A.M. - 12:30 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Saquib Ahmed, SUNY Buffalo State University; Reg Pecen, Sam Houston State University

Integrating Community-Engaged Research and Energy Justice in Design Pedagogy: Reflections on a First-Year Undergraduate Design Course

Prof. Aditi Verma, University of Michigan

Dr. Katie Snyder, University of Michigan

Experiences of Nuclear Workforce Pipeline Development and Maintenance at a Historically Black College University (HBCU)

Dr. Antony Kinyua, Morgan State University

Spreadsheet-Based Application Integrated with Virtual Reality for Teaching Economic and Environmental Assessment of Subsurface Gasification for Hydrogen Production

Dr. Jude Okolie, University of Oklahoma

Emma Kadence Smith, University of Oklahoma

Designing Equitable STEM Education Modules with Renewable Energy Technologies

Dr. Matthew Aldeman, Illinois State University

Prof. James Mathias, Southern Illinois University, Carbondale

Daniel Austin Darcy, Illinois State University

Cheron James Elms

Kaitlyn Marie Quinn

Douglas Andracki

M318 - Engineering Design Graphics Division (EDGD) Technical Session 1

11:00 A.M. - 12:30 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Engineering Design Graphics Division (EDGD)

Moderator: Joshua Gargac, Ohio Northern University

Longitudinal Assessment of Spatial Skills Development in MET Students

Dr. Steven Nozaki, Pennsylvania State University

Dr. Nancy E. Study, Pennsylvania State University

Dr. David Clippinger

Patterns of Retention and Persistence Rates in a Student-Centered Engineering Design Graphics Course

Mr. Erik Schettig, North Carolina State University

Dr. Daniel P. Kelly, North Carolina State University

Dr. Aaron C. Clark, North Carolina State University

Dr. Jeremy V. Ernst, Embry-Riddle Aeronautical University

Engineering Self-Efficacy and Spatial Skills: A Systematic Literature Review

Mrs. Katrina Carlson, Michigan Technological University

Dr. Michelle E. Jarvie-Eggart, Michigan Technological University

Kyla Richardson, Michigan Technological University

Engineering Graphics Education for the Digital Enterprise: A Practical Example in a Large Freshman Engineering Course

Prof. Travis Fuerst, Purdue University

Dr. Jorge Dorribo Camba

Angshuman Mazumdar, Purdue University

M319 - Engineering Economy Division Business Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 2, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Economy Division (EED)

Moderator: Billy Gray, Tarleton State University

Annual business meeting for the Engineering Economy Division

M3195A - The Future of Data Science in Education

11:00 A.M. - 12:30 P.M., A108, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderator: Bala Maheswaran, Northeastern University

Speakers: Prof. Joaquin Carbonara, SUNY Buffalo State University; Mr. Richard R. Harris, Northeastern University; Mr. Ibukun Samuel Osunbunmi, Pennsylvania State University; Dr. Sagar V. Kamarthi, Northeastern University

In today's rapidly evolving digital landscape, data science has become an integral part of educational institutions, shaping everything from personalized learning experiences to administrative decision-making. This panel will bring together experts from the fields of data science and education to explore the current trends, the challenges, and the promising future that lies ahead in leveraging data for educational excellence.

This panel discussion will provide a comprehensive overview of the role of data science in education, offering valuable insights into the current landscape and future possibilities. Whether you're an educator, a data scientist, or simply curious about the future of education, this event promises to be both informative and thought-provoking.

Discussion Topics:

1. The Current State of Data Science in Education: An overview of how data science is currently being utilized in educational institutions for improving learning outcomes and administrative processes.

2. Personalized Learning: How data-driven insights are enabling the customization of educational content to cater to individual student needs, enhancing the learning experience.

3. Challenges in Implementing Data Science in Education: Discussing the obstacles and ethical concerns related to data collection, privacy, and biases in educational data.

4. Data-Driven Decision-Making: Exploring how data analytics is helping educational leaders make informed decisions regarding curriculum development, resource allocation, and student support.

5. Future Trends and Innovations: Predictions and insights into how data science is likely to evolve in the education sector over the next decade.

6. Ethical Considerations: Addressing the ethical implications of collecting and using student data, and the importance of responsible data practices in education.

M3195B - DSA Technical Session 1

11:00 A.M. - 12:30 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderator: Bruce Wilcox, University of Southern California

Data-Driven Methods to Simplify Academic Curriculum

Minimizing Curricular Complexity through Backwards Design

Prof. Gregory L. Heileman, The University of Arizona

Dr. Yiming Zhang, The University of Arizona

Enhancing Academic Pathways: A Data-Driven Approach to Reducing Curriculum Complexity and Improving Graduation Rates in Higher Education

Dr. Ahmad Slim, The University of Arizona

Prof. Gregory L. Heileman, The University of Arizona

Husain Al Yusuf, The University of Arizona

Dr. Yiming Zhang, The University of Arizona

Asma Wasfi

Mohammad Hayajneh

Bisni Fahad Mon, United Arab Emirates University

Ameer Slim, University of New Mexico

Causal Inference Networks: Unraveling the Complex Relationships Between Curriculum Complexity, Student Characteristics, and Performance in Higher Education

Dr. Ahmad Slim, The University of Arizona

Prof. Gregory L. Heileman, The University of Arizona

Melika Akbarsharifi, The University of Arizona

Kristina A. Manasil, The University of Arizona

Ameer Slim, University of New Mexico

Assessing Chemical Engineering Students' Perspectives on Data Science and Its Integration in the Academic Curriculum: Implications for Industry Readiness

Dr. Betul Bilgin, The University of Illinois at Chicago

Naomi Groza, The University of Illinois at Chicago

M320A - The Global and Cultural Dimensions of Engineering Ethics Education

11:00 A.M. - 12:30 P.M., A106, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Natalie Van Tyne, Virginia Polytechnic Institute and State University; Udayan Das

The Global and Cultural Dimensions of Engineering Ethics Education

Application of African Indigenous Knowledge Systems to AI Ethics Research and Education: A Conceptual Overview

Kerrie Danielle Hooper, Florida International University

Ivan Oyege, Florida International University

Ethical Reasoning, Moral Intuitions, and Foreign Language in Global Engineering Education [Global Engineering Ethics Education]

Dr. Rockwell Franklin Clancy III, Virginia Polytechnic Institute and State University

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

Dr. Scott Streiner, University of Pittsburgh

Dr. Andrea Gammon, Delft University of Technology

Dr. Ryan Thorpe

Research on Engineering Ethics Education in China's Science and Engineering Universities

Dr. Huiming Fan, East China University of Science and Technology

Xinru Li

Examining the Characteristics and Traits of Young Engineers' Moral Exemplars

Mr. Darius Grandvil Carter, San Francisco State University

Dr. Stephanie Claussen, San Francisco State University

M321 - Engineering Libraries Division (ELD) Technical Session 1

11:00 A.M. - 12:30 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Eric Prosser, Arizona State University

Free ticketed event

Preparing Engineering Graduate Students to Engage in Scholarly Communications

Prof. Dianna Morganti, Texas A&M University

Mrs. Angie Dunn, Texas A&M University

Surveying the Landscape: Exploring STEM Instructors' Selection Criteria for Instructional Materials

Elizabeth Dawson, Northern Arizona University

Ms. Susan Wainscott, University of Nevada, Las Vegas

Teaching Engineering Information Literacy with INCLUSIVE ADDIE

Mr. Paul McMonigle, Pennsylvania State University

Ms. Denise Amanda Wetzel, Pennsylvania State University

Sara C. Kern, Pennsylvania State University

Undergraduate Engineering Transfer Students and the One-Shot Library Resource Instruction: Using Nearpod to Promote Active Student Engagement

Beth Carpenter, University at Buffalo, The State University of New York

Ms. Erin Rowley, University at Buffalo, The State University of New York

M322 - Engineering Management Division (EMD) Technical Session 1

11:00 A.M. - 12:30 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Renee Rottner

Program-level innovations in design, delivery, and assessment

Engineering Student Support 2.0: A Blueprint for Recruitment, Retention, and Success

Dr. Kumar Yelamarthi, Tennessee Technological University

Dr. Elizabeth A. Powell, Tennessee Technological University

The Journey of Establishing and Operating an Innovation Center to Nurture Future Engineering Innovators

Dr. Chun Kit Chui, University of Hong Kong

Prof. Norman C. Tien, University of Hong Kong

Career Advantages of Business Education Courses for Engineering Management Students

Dr. Saeed D. Foroudastan, Middle Tennessee State University

Suzanne S. Hicks, Middle Tennessee State University

The Evolution of Engineering Management Program Assessment: Lessons Learned in Digital Delivery

Major Sam Yoo, United States Military Academy

Col. James Schreiner, United States Military Academy

M323B - Engineering Technology Division Executive Board Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderator: Scott Dunning, Virginia Polytechnic Institute and State University

M324 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 1

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Rajani Muraleedharan, Saginaw Valley State University; Noemi Mendoza Diaz, Texas A&M University

Social Entrepreneurship and Collaborative Skills

Co-Developing a Social Entrepreneurship Program with a Focus on Engineering

Dr. Heather Greenhalgh-Spencer, Texas Tech University

Dr. Tim Dallas P.E., Texas Tech University

Teaching Students about Social Entrepreneurship within the Context of Sustainability

Dr. Irene B. Mena, University of Pittsburgh

Sustainable Innovation and Entrepreneurship Short Course in Ecuador

Dr. Pritpal Singh, Villanova University

Work in Progress: The Missing Link in I-Corps Entrepreneurship Engineering Education at a Southwestern Institution

Dr. Noemi V. Mendoza Diaz, Texas A&M University

Ms. Magdalini Z Lagoudas, Texas A&M University

Development of an Innovation Corps-Modelled Bioengineering Course to Promote Entrepreneurial Engagement Among Undergraduate Students

Amanda Walls, University of Arkansas

Thomas Hudnall McGehee, University of Arkansas

Ishita Tandon, University of Arkansas

Timothy J. Muldoon, University of Arkansas

Dr. Mostafa Elsaadany, University of Arkansas

M325 - Environmental Engineering Division (ENVIRON) Technical Session 1 - Sustainability & Environmental Justice

11:00 A.M. - 12:30 P.M., B117, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Shannon Parks, University of Pittsburgh at Johnstown; Stephanie Laughton, The Citadel; Andrew Pfluger, United States Military Academy

Papers in this session present work concerning environmental justice and/or sustainability within courses or curricula.

Impact of an Experimental Centric Learning on Peer Learning and Collaboration among Environmental Engineering Undergraduates in a Historical Black College and University

Mr. Benjamin Gbeminiyi Famewo, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Gbekeloluwa B. Oguntimein P.E., Morgan State University

Ms. Hye Jeong Lee

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Introducing Socioeconomic Determinants in Environmental Engineering and Chemistry Courses

Dr. Alexa Rihana Abdallah, University of Detroit, Mercy

Dr. Katherine C. Lanigan, University of Detroit, Mercy

Integrating Environmental Justice into Civil and Environmental Engineering Curricula

Dr. Michelle Henderson, University of South Florida

Dr. Maya A. Trotz, University of South Florida

Dr. E. Christian Wells, University of South Florida

Dr. Maya Elizabeth Carrasquillo, University of California, Berkeley

Dr. Ruthmae Sears

Katherine Ann Alfredo, University of South Florida

Dr. Deirdre Cobb-Roberts, University of South Florida

Preparing the Next Generation of Engineers for Decision Making under Deep Uncertainty: Exploring the Pedagogical Role of the Decisions for the Decade Game

Marissa Webber, Carnegie Mellon University

Dr. Fethiye Ozis P.E., Carnegie Mellon University

Integrating Sustainability in Higher Education: Curricular Review and Opportunities for Future Development

Dr. Jennifer Mueller, Rose-Hulman Institute of Technology

Samuel Thomas Walsh, Rose-Hulman Institute of Technology

EmPOWERing a Sustainable Energy Future through Interconnected Curricular and Co-Curricular Pedagogies

Prof. Jeffrey M. Bielicki, The Ohio State University

Yun-Han Weng, The Ohio State University

Emily T. Creamer, The Ohio State University

Matthew Judkins Mayhew, The Ohio State University

M326 - ELOS Technical Session 1 - Fluids, Wind, and Flow

11:00 A.M. - 12:30 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Natasha Smith, University of Virginia

A Low-Cost, Adaptable System for Lift and Drag Measurement in an Educational Wind Tunnel

Jessica Weakly, University of Pennsylvania

Sarah Ho, University of Pennsylvania

Erica Feehery, University of Pennsylvania

Dr. Bruce David Kothmann, University of Pennsylvania

Cynthia Sung, University of Pennsylvania

A Modular Water Bench and Fountain Design Project for an Undergraduate Fluid Dynamics Laboratory

Dr. Blake Everett Johnson, University of Illinois at Urbana - Champaign

Designing a Low-Cost Series, Parallel, and Single Centrifugal Pumps Exercise for an Upper-Level Undergraduate Laboratory

Dr. Blake Everett Johnson, University of Illinois at Urbana - Champaign

Mr. Partha Kumar Das, University of Illinois at Urbana - Champaign

Desktop Flow Visualisation Experiments for Guided Discovery of Boundary Layers

Dr. Peter B. Johnson, Imperial College London

Christian Klettner, University College London

Lab on Cart: Developing a Low-Cost Fluid Visualization Setup for Experiential Learning, Class Demonstration, and Outreach

Alireza Ebadi, Worcester Polytechnic Institute

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

M327 - First-Year Programs Division Technical Session 1: Evolving First Year Programs

11:00 A.M. - 12:30 P.M., B113, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Eric Steward, University of South Alabama; Zachary Del Rosario, Franklin W. Olin College of Engineering

This is a full paper session on how first-year programs are evolving to improve student success.

Longitudinal Assessment of the Achievement of the Desired Goals and Characteristics of a First-Year Engineering Course Redesign

Dr. Kelly Salyards, Bucknell University

Prof. Katsuyuki Wakabayashi, Bucknell University

Dr. Richard J. Kozick, Bucknell University

Dr. Benjamin Wheatley, Bucknell University

Data Analysis for First-Year Experience Redesign

Dr. Ryan W. Krauss, Grand Valley State University

Dr. Nicholas A. Baine, Grand Valley State University

Evolving Engineering Education: A Strategy to Improve Student Performance

Dr. Craig M. Harvey P.E., Georgia Southern University

Mrs. Sarah Cooley Jones, Louisiana State University and A&M College

Dr. Elizabeth Michelle Melvin, Clemson University

Dr. Roberto Champney

A Multidimensional Approach to Providing Excellent FYE that Increases Belonging, Retention, and Success of Engineering Students

Dr. Doris J. Espiritu, Wilbur Wright College, City Colleges of Chicago

Catalyzing Sociotechnical Thinking: Exploring Engineering Students' Changing Perception of Racism in Automation during a First-Year Computation Course

Dr. Kaylla Cantilina, Tufts University

Dr. Ethan E. Danahy, Tufts University

M327B - First-Year Programs Division Technical Session 2: AI, Computation, and Electronics

11:00 A.M. - 12:30 P.M., COLUMBIA 3 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: First-Year Programs Division (FYP)

Moderators: Elvira Osuna-Highley, MathWorks; Koenraad Gieskes, State University of New York at Binghamton

This is a full paper session on artificial intelligence in the first-year classroom as well as classes in computation and electronics.

Students' Perception and Use of AI Tools in a First-Year Design Thinking Course

Dr. Lakshmy Mohandas, Purdue University

Prof. Nathan Mentzer, Purdue University

Use of Game-Based Learning with ChatGPT to Improve Mathematical Modeling Competences in First-Year Engineering Students

Dr. Gibrán Sayeg-Sánchez, Tecnologico de Monterrey

Prof. Miguel X. Rodriguez-Paz, Tecnologico de Monterrey

Re-Design Introductory Engineering Course for Tinkering with Generative AI and the Shifts in Students' Perceptions of Using AI for Learning

Ms. Yume Menghe Xu, Tufts University

Dr. Ethan E. Danahy, Tufts University

William Church

Complete Evidence-Based Practice: Analysis of Machine Vision in a First-Year Engineering Project

Dr. Julie Gordon Whitney

Dr. William Davis Ferriell, University of Kentucky

Using Contexts within Assessments to Increase Student Exposure to Microelectronics

Ms. Azizi Penn, Purdue University

Dr. Kerrie A. Douglas, Purdue University

Prof. Tamara J. Moore, Purdue University

Investigating the Effects of Prerequisite CS1 Options for a CS2 Course Through an Analysis of Student Project Scores in CS2

Dr. Laura K. Alford, University of Michigan

Dr. James A. Juett, University of Michigan

Heather Rypkema, University of Michigan

M328 - Graduate Studies Division (GSD) Technical Session 1: Onboarding and Community Building in Graduate Education

11:00 A.M. - 12:30 P.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Onboarding Engineering Graduate Students from Non-Engineering Undergraduate Majors

Dr. Lindsay Corneal, Grand Valley State University

Dr. Sanjivan Manoharan, Grand Valley State University

Dr. Samhita Rhodes, Grand Valley State University

"Ima Nmadu": Building Academic Success Through Relationships—A Black Civil Engineering Ph.D. Student's Autoethnographic Insights

Miss Mary Ifeoma Nwanua, University of Florida

Implementing a Seminar Series to Build Collaboration and Community among STEM Education Ph.D. Students

Mrs. Ashton Garner Ward, Louisiana Tech University

Ms. Krystal Corbett Cruse, Louisiana Tech University

Mr. Casey Kidd, Louisiana Tech University

Mrs. Lindsay K. Gouedy, Louisiana Tech University

Dr. Kelly B. Crittenden, Louisiana Tech University

Graduate Student Perceptions of Community Building as a Precursor to Active Learning

Dr. Sarah A. Goodman, Stevens Institute of Technology

Emily L. Atieh, Stevens Institute of Technology

M330 - Computing and Information Technology Division (CIT) Technical Session 1

11:00 A.M. - 12:30 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Seyed Mousavinezhad, Idaho State University; Fadhla Junus, Purdue Engineering Education

Examining ChatGPT in Educational Settings: Ethics, Challenges, and Opportunities

Dr. Mudasser Fraz Wyne, National University

Dr. Alireza Farahani

Dr. Lu Zhang, National University

Apples or Oranges: A Step Back in Time to Understand Which Programming Language is for Novice Programmers

Kwansun Cho, University of Florida

Mr. Umer Farooq, Texas A&M University

Dr. Saira Anwar, Texas A&M University

Designing Course Level-Appropriate Mentoring for Computing Students

Dr. Shamima Mithun, Indiana University-Purdue University, Indianapolis

Xiao Luo, Oklahoma State University

Designing a Multi-VMs Platform for Infosec Students

Dr. Tarik Eltaeib, Farmingdale State College

Dr. M. Nazrul Islam, State University of New York

Dr. Qinghai Gao

Active Learning in an Upper Division Computer Networks Course

Mahima Agumbe Suresh, San Jose State University

M331 - Learning through Instrumentation: Experiences and Applications

11:00 A.M. - 12:30 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Instrumentation Division (INST)

The authors will present their experiences with teaching and learning using instrumentation inside and outside the classroom and laboratory. Such instrumentation includes embedded systems, simulation, DAQ, sensors, and innovative signal analysis.

Experiential Learning with Mobile Robots: Bridging Physical and Virtual Environments

Dr. Abhijit Nagchaudhuri, University of Maryland, Eastern Shore

Jackson Mitchell Cuppett, University of Maryland, Eastern Shore

Prof. Dave Akin, University of Maryland, College Park

Urjit Korok Chakraborty, James M. Bennett High School

Mr. Lance C. Ward, University of Maryland, Eastern Shore

Parker Wilson, University of Maryland, Eastern Shore

Mason Alexander Morgan

Rahul Vishnoi, University of Maryland, College Park

Romeo Gabriel Perlstein, University of Maryland, College Park

Tilt Sensor Design Project Raises Awareness of Rollover Accidents and their Prevention

Dr. Dale H. Litwhiler, Pennsylvania State University

Work in Progress: Hardware-in-the-Loop Process Control Simulation Labs

Mr. Bradley Lane Kicklighter P.E., University of Southern Indiana

Data Acquisition Using the Raspberry Pi Pico W

Prof. David R. Loker, Pennsylvania State University

M332 - International Division Business Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: International Division (INTL)

Business Meeting

M332B - International Division (INTL) Technical Session: Diversity, Equity and Inclusion

11:00 A.M. - 12:30 P.M., D137, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Moderators: Syed Hassan Tanvir, University of Florida; Chibuzor Okocha, University of Florida

This session will focus on increasing access, diversity, and inclusion and racial equity in international engineering programs.

Proposing a Culturally Sustaining Pedagogy Research Framework in Sub-Saharan Africa STEM Education: A Paradigm Shift from Deficit to Asset Based Perspectives

Mr. Viyon Dansu, Florida International University

Dr. Alexandra Coso Strong, Florida International University

Investigating Transition Phases: An Autoethnographic Study of International Women of Color Engineering Educators in the U.S.

Maimuna Begum Kali, Florida International University

Debalina Maitra, Arizona State University

Dr. Sreyoshi Bhaduri, ThatStatsGirl

Dr. Lilianny Virguez, University of Florida

Navigating the Personal and Professional: How University STEM Mentorship Programs Support Women in Austria and Germany

Rebeca Petean, Society of Women Engineers

Dr. Roberta Rincon, Society of Women Engineers

Proposal of Teacher Training in DEI + STEM: A Collaborative Work in Latin America and the Caribbean

Juan Sebastián Sánchez-Gómez, Universidad de los Andes

Laura Eugenia Romero Robles, Tecnológico de Monterrey

Maria Catalina Ramirez

Libis Del C Valdez C

Luis Alberto Cruz Salazar

Where Are Women Engineering Faculty in Ethiopia? The Stubborn Gender Disparity in Engineering Faculty in Ethiopian Universities

Jemal Bedane Halkiyo, Arizona State University

Sultan Bedane Halkiyu, Bule Hora University

Abdisa Bedane Halkiyu, Bule Hora University

Roma Bedane Halkiyu, Arba Minch University

Demitu Geda, Bule Hora University

Dr. Nadia N. Kellam, Arizona State University

M333 - Lisa's Legacy: Guiding Students Toward Engineering Careers, Excellent!

11:00 A.M. - 12:30 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Jamie Gurganus, University of Maryland Baltimore County

This session will explore how high school students' perspectives, interests, and sense of belonging guide them towards engineering careers.

High School Students' Perspectives on Pre-college Engineering Education Courses (Fundamental)

Jialing Wu, Vanderbilt University

Dr. Medha Dalal, Arizona State University

College Choice Decisions: An Evaluation of Perna's Conceptual Model Across Populations and Cultural Contexts

V. Sanchez Padilla, Virginia Polytechnic Institute and State

University; Universidad ECOTEC, Ecuador

Lisa Schibelius, Virginia Polytechnic Institute and State University

The influence of self-efficacy on pre-college students' interest in STEM fields

Britta Solheim, Wartburg College

Jack Saylor Priske, Wartburg College

Dr. Murad Musa Mahmoud, Wartburg College

Dr. Cristian Gerardo Allen, Wartburg College

Prof. Kurt Henry Becker, Utah State University

Finding Home: Pre-College Socialization and Anticipatory Belonging on Campus (Fundamental)

Dr. Benjamin Goldschneider, University of Virginia

M334 - Olmsted Awardee Conversation

11:00 A.M. - 12:30 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

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

Moderator: Marie Stettler Kleine, Colorado School of Mines

Speakers: Dr. Jon A. Leydens, Colorado School of Mines; Dr. Julia M. Williams, Rose-Hulman Institute of Technology; Dr. Jenn Stroud Rossmann, Lafayette College

Panelists and previous recipients of the division's highest honor discuss the state of the field that is engineering and liberal education and/or engineering and society.

M335 - Refining Manufacturing Education Practices

11:00 A.M. - 12:30 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Zhenhua Wu, Virginia State University; Hengtao Tang, University of South Carolina

Developing Elementary Students' Career Awareness of Advanced Manufacturing

Hengtao Tang, University of South Carolina

Dr. Ramy Harik, University of South Carolina

Digital Twin for Additive Manufacturing and Smart Manufacturing Education

Dr. Huachao Mao, Purdue University

Yujie Shan, Purdue University

Dr. Hamid EisaZadeh, Old Dominion University

Integrating Soft Skills into Technical Curriculum

Dr. Arif Sirinterlikci, Robert Morris University

Prof. Jameela Al-Jaroodi

Dr. Anthony Moretti, Robert Morris University

Reflections on Multi-campus Teaching in a New Manufacturing Engineering Program

Dr. Christoph Johannes Sielmann P.Eng., University of British Columbia, Vancouver

Dr. Casey James Keulen, University of British Columbia, Vancouver

Abbas Hosseini, University of British Columbia, Vancouver

M336 - Materials Division (MATS) Technical Session 1

11:00 A.M. - 12:30 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderator: Kaitlin Tyler, ANSYS, Inc.

Teaching Basic Concepts in Machine Learning to Engineering Students: A Hands-on Approach

Dr. David Olubiyi Obada, Ahmadu Bello University, Nigeria

Mr. Simeon Akindele Abolade, Atlantic Technological University, Ireland

Mr. Shittu Babatunde Akinpelu, Atlantic Technological University, Ireland

Ayodeji Nathaniel Oyedeji, Ahmadu Bello University, Nigeria

Dr. Emmanuel Okafor, King Fahd University of Petroleum and Minerals, Saudi Arabia

Ms. Cynthia Ujuh Odili, Ahmadu Bello University, Nigeria

Vanessa Faustina Ogenyi

Mr. Sokoga Victor Ategbe, Ahmadu Bello University, Nigeria

Prof. Adrian Oshioname Eberemu, Ahmadu Bello University, Nigeria

Fatai Olukayode Anafi, Ahmadu Bello University, Nigeria

Abdulkarim Salawu Ahmed, Ahmadu Bello University, Nigeria

Dr. Akinlolu Akande, Atlantic Technological University, Ireland

Raymond Bacsmond Bako

Teaching Artificial Intelligence and Machine Learning to Materials Engineering Students through Plastic 3D Printing

Dr. Joel L. Galos, California Polytechnic State University, San

Luis Obispo

Aaron Zachary Chandler Friedman, California Polytechnic State University, San Luis Obispo

Ethan Jamosmos, California Polytechnic State University, San Luis Obispo

Dr. Sarah Isabel Allec, Citrine Informatics

Brina Blinzler, The University of Kansas

Lessa Grunenfelder, University of Southern California

Dr. Adam R. Carberry, The Ohio State University

Re-Envisioning Materials Science Education Through Atomic-Level Computational Modeling

Mr. Jacob Kelter, Northwestern University

Prof. Jonathan Daniel Emery, Northwestern Univeristy

Prof. Uri Joseph Wilensky

Assessing the Effects of an Interactive Web-native Materials Science Textbook on Student Self-efficacy

Dr. Ryan Barlow, zyBooks

Dr. Adrian Rodriguez, zyBooks

Lauren Fogg

Ms. Linda Ratts, Wiley

Dr. Mohsen Sarraf, University of New Haven

Yasaman Adibi, zyBooks

Ms. Jenny Welter, Wiley

Ms. Mary Fraley, Michigan Technological University

Integrating Computational and Physical Lab Modules in Materials Science and Engineering

Jonathan R. Brown, The Ohio State University

Dr. Elvin Beach, The Ohio State University

M337 - Mathematics Division (MATH) Technical Session 1

11:00 A.M. - 12:30 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Moderators: Hui Ma, University of Virginia; Luis Montero-Moguel, The University of Texas at San Antonio

An Alternative Methodical Approach and Its Effectiveness to Learn Change of Basis Matrices in an Engineering Linear Algebra Class

Meiqin Li, University of Virginia

Exploring Effective Pedagogical Approaches for Teaching Linear Algebra to Engineering Students: A Literature Review

Dr. Meiqin Li, University of Virginia

Dr. Heze Chen, University of Virginia

Student Perceptions on the Effectiveness of Incorporating Numerical Computations into an Engineering Linear Algebra Course

Dr. Meiqin Li, University of Virginia

Dr. Jessica Taggart, University of Virginia

Exploring the Impact of Mastery Grading on Student Performance

Dr. Diana D. Morris, University of Virginia

Dr. Hui Ma, University of Virginia

Farzad Shafiei Dizaji, University of Virginia

Leveraging Mathematical Modeling to Expand Measurement-Process Opportunities for Engineering Students

Luis E. Montero-Moguel, The University of Texas at San Antonio

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Dr. Guadalupe Carmona, The University of Texas at San Antonio

M338A - NSF Guest Speaker: NSF Funding Opportunities – Part 1

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Siamak Farhad, The University of Akron; Maryam Younessi Sinaki, Cleveland State University

Speaker: Rebecca Shearman

The NSF speaker(s) will provide an introduction to the Directorate for Technology, Innovation, and Partnership (TIP) at NSF. The subsequent discussion will center around NSF's Workforce Development programs, including ExLENT, NSF Engines, I-Corps, Council of Graduate Schools, Entrepreneurial Fellowships, GRANTED, and more. Participants are encouraged to address their queries to program directors after each presentation. While organized by the Mechanical Engineering Division, this special session is inclusive and welcomes participants from all divisions to explore NSF funding opportunities across various engineering disciplines.

Free ticketed event

M338B - MECH - Technical Session 1: Foundations of Engineering Education

11:00 A.M. - 12:30 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Masoud Rais-Rohani, University of Maine; Rasim Guldiken, University of South Florida

This session covers innovative teaching methods in engineering, including stress analysis in statics, self-paced machining, concept maps, learning-management systems, and expanded diagrammatic frameworks.

Work in Progress: Integrating Basic Stress Analysis Concepts into Statics

Dr. Joseph J. Rencis P.E., University of Texas at Dallas

Dr. Hartley T. Grandin Jr., Worcester Polytechnic Institute

The Mini-Mill Experience: A Self-Paced Introductory Machining Exercise for Mechanical Engineering Students

Prof. Jenni Buckley, University of Delaware

Dr. Amy Trauth, American Institutes for Research

Dr. Alexander John De Rosa, University of Delaware

Using Concept Maps in an Undergraduate Heat Transfer Course

Dr. Najmus Saqib, Marian University

Learning Management System Feature Use in Mechanical Engineering Second- and Third-Year Courses Before, During, and After a Disruption

James Hiram Cover, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Dr. Grace Panther, University of Nebraska, Lincoln

Storage and Interaction Diagrams: Extending the Diagrammatic Framework of Kinetic and Free-Body Diagrams to other Conservation and Accounting Principles

Dr. Amir H. Danesh-Yazdi, Rose-Hulman Institute of Technology

M339 - Learning Mechanics through Visual and Tactile Modalities

11:00 A.M. - 12:30 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Geoffrey Recktenwald, Michigan State University; Amie Baisley, University of Florida

Can Hands-on Statics Improve Student Learning?

Prof. Eric Davishahl, Whatcom Community College

Dr. John Chen P.E., California Polytechnic State University, San Luis Obispo

Alan Zhang, California Polytechnic State University, San Luis Obispo

Dr. Kathryn Mary Rupe, Western Washington University

Correlating Common Errors in Statics Problem Solving with Spatial Ability

Dr. Maxine Fontaine, Stevens Institute of Technology

Dr. Chaitanya Krishna Vallabh, Stevens Institute of Technology

Exploring Experiential Assessment in Mechanics of Materials: A Departure from Traditional Examinations

Dr. Sarira Motaref, University of Connecticut

Impact of Graphical Reasoning in Elementary Vector Analysis: A Case Study from Statics

Dr. Christopher Papadopoulos, University of Puerto Rico, Mayaguez Campus

Dr. Jean Carlos Batista Abreu, Elizabethtown College

Pull, Twist, and Break: Helping Engineering Students Visualize Material Failures

Brandon Clumpner, United States Military Academy

Dr. Kevin Francis McMullen, United States Military Academy

Elizabeth Bristow, United States Military Academy

M340B - Fostering Diversity and Inclusion in STEM Education

11:00 A.M. - 12:30 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Ivet Parra-Gaete, Arizona State University, Polytechnic Campus; Nebojsa Jaksic, Colorado State University-Pueblo

This session focuses on initiatives aimed at fostering diversity and inclusion in STEM education. Presentations will explore various strategies, programs, and experiences designed to support underrepresented minority students, enhance access to STEM fields, and promote equity in educational opportunities. In particular, the session will highlight pilot programs introducing augmented reality to high school students and qualitative studies on supporting experiences

for underrepresented minority doctoral candidates. Attendees will gain insights into the impact of undergraduate research, mentoring approaches, and pre-college initiatives on student retention and academic development across diverse study fields. Additionally, reflexive thematic analyses offer perspectives on the experiences of high school students engaged in environmental justice internships, contributing to a broader discussion on broadening participation in engineering and technology. Join us to explore innovative approaches and insights for promoting diversity and inclusion in STEM education.

A Pilot Program to Introduce Augmented Reality to Female Hispanic High School Students in STEM Education

Amani Qasrawi, The University of Texas at San Antonio

Dr. Tulio Sulbaran, The University of Texas at San Antonio

Dr. Sandeep Langar, The University of Texas at San Antonio

A Qualitative Study of Support and Transition Experiences for Underrepresented Minority Students in the Rising Doctoral Institute

Dr. Ivet Parra-Gaete, Arizona State University

Abimelec Mercado Rivera, Arizona State University

Dr. Mayra S. Artiles, Arizona State University

Dr. Stephanie G. Adams, The University of Texas at Dallas

Dr. Juan M. Cruz, Rowan University

Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Dr. Gwen Lee-Thomas, Quality Measures

Martha Lucia Cano Morales, Rowan University

Ing. Eduardo Rodriguez Mejia

A Reflexive Thematic Analysis of the Experience of a High School Junior in the STEMcx Environmental Justice Internship

Dr. Royce A. Francis, The George Washington University

Undergraduate Research Impact on Students' Retention and Academic Development Based on Their Study Field and the Mentoring Approach

Dr. Bahaa Ansaf, Colorado State University, Pueblo

Dr. Nebojsa I. Jaksic P.E., Colorado State University, Pueblo

Abby Davidson, Colorado State University, Pueblo

Jim S. Carsella Ph.D, Colorado State University, Pueblo

Dr. Sanaa Sh. Al-Samahi, University of Baghdad

Mohammed Al-Shammaa

M341 - Multidisciplinary Engineering Division (MULTI) Technical Session 10

11:00 A.M. - 12:30 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Aneesha Gogineni, Saginaw Valley State University; Otilia Popescu, Old Dominion University

A Pilot Study of the Use and Attitudes Toward Large Language Models Across Academic Disciplines

Dr. Lawrence E. Whitman, University of Arkansas at Little Rock

Kristin Dutcher Mann, University of Arkansas at Little Rock

Dr. Amar Shireesh Kanekar, University of Arkansas at Little Rock

Albert L. Baker, University of Arkansas at Little Rock

Dr. Srikanth B. Pidugu P.E., University of Arkansas at Little Rock

Finding Common Ground: Comparing Engineering and Design Graduate Students' Conceptualizations of Interdisciplinary Education Across Two Institutions

Margaret Webb, Virginia Tech Department of Engineering Education

Xiaoqi Feng, Aalto University, Espoo, Finland

Hanna Aarnio, School of Engineering, Aalto University, Espoo, Finland

Julia Sundman, School of Engineering, Aalto University, Espoo, Finland

Felicity Bilow, Virginia Polytechnic Institute and State University

Dr. Maija Taka, Aalto University

Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

Marko Keskinen, Aalto-yliopisto/Elektroniikan, tietoliikenteen

Design of Embedded Interdisciplinary Educational Program: A Case Study-based on an AI Certification Program

Yu Zhang, Zhejiang University

Xiaoning Zhang, Zhejiang University

Prof. Tuoyu Li, Institute of China's Science, Technology and Education Policy, Zhejiang University

Min Ye, Zhejiang University

Emotionally Intelligent Machines in Education: Harnessing Generative AI for Authentic Human-Machine Synergy in the Classroom

Nicu Ahmadi, Texas A&M University

Mr. Lance Leon Allen White, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Examining the Opportunities and Challenges of Using Artificial Intelligence for Engineering Technical Writing Courses

Dr. Susan J Ely, University of Southern Indiana

Dr. Milad Rezvani Rad, University of Southern Indiana

M342 - NEE Technical Session 1 - Educator's Tools

11:00 A.M. - 12:30 P.M., B116, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderators: Christopher Green, University of North Carolina at Charlotte; Tai Chen, University of Washington

Papers in this session cover tools and procedures for instructors to have a more impactful learning experience.

Integrating Ethics into Engineering Education: A Case-Based Learning Approach

Dr. Jennifer Mott, California Polytechnic State University, San Luis Obispo

Dr. Steffen Peuker, California Polytechnic State University, San Luis Obispo

Development of a Procedure to Avoid Plagiarism in Scholarly Work

Dr. Quamrul H. Mazumder, University of Michigan, Flint

Sunzia Sultana, University of Michigan, Flint

A Tool for Gaining Insight into Students' Self-Directed Learning Skills

Miss Toluwalase Opanuga, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Mr. Logan Andrew Perry, University of Nebraska, Lincoln

Grace Panther, University of Nebraska, Lincoln

There's a Textbook for this Class? Scaffolding Reading and Note-taking in a Digital Age

Dr. Timothy A. Wood, The Citadel

Stephanie Laughton, The Citadel

WIP: Using Simple Board Games to Teach Complex Concepts

Dr. Laura Savage, Virginia Polytechnic Institute and State University

M346 - Software Engineering Division (SWED) Technical Session #1

11:00 A.M. - 12:30 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Ahmad Javaid, The University of Toledo; Afsaneh Minaie, Utah Valley University

Equipping Students in Software Development with Socially Engaged Engineering and Design Skills

Dr. Jin Woo Lee, California State University, Fullerton

Paul Salvador Bernedo Inventado, California State University, Fullerton

Dr. Erika Mosyjowski, University of Michigan

Developing a Process for Software Engineering Curriculum Modernization

Dr. Emily Marasco, University of Calgary

Ms. Milana Hayley Grozic, University of Calgary; The University of British Columbia

Yves Pauchard, University of Calgary

Dr. Mohammad Moshirpour, University of Calgary

Introducing Systems Thinking as a Framework for Teaching and Assessing Threat Modeling Competency

Siddhant Sanjay Joshi, School of Engineering Education, Purdue University, West Lafayette

Preeti Mukherjee, Purdue University

Dr. Kirsten A. Davis, Purdue University

Dr. James C. Davis, Purdue University

Developing an Agile Mindset in Software Engineering Students

Suddhasvatta Das

Dr. Kevin A. Gary, Arizona State University

M347 - Navigating the Dual-Career Search

11:00 A.M. - 12:30 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Jahnavi Dirisina, University of Oklahoma

Speakers: Dr. Karin Jensen, University of Michigan; Ms. Sarah Jane Bork, University of Georgia; Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

Embarking on an academic job search in itself is a stressful process. Flexibility and mentorship are frequently required to be successful (e.g., casting a wide net for potential institutions, etc.). At the same time, many individuals may meet and/or have partners in academia, both of whom desire to remain in academic positions (nontenure and/or tenure track) long-term. Dubbed the dual-body search, two individuals seeking academic jobs near one another is a process that is often not discussed. Whether from stigma or the hidden curriculum surrounding this process, there is a need to shed light on these experiences. We hope to do that in this panel. Topics will discuss the nuances and experiences of a dual-hire search, such as navigating where to apply and when to discuss this in the interview process, negotiation tips, and more. This session can apply to anyone in the search process, from senior graduate students to early career professionals.

M348A - Systems Thinking

11:00 A.M. - 12:30 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Systems Engineering Division (SYS)

Moderator: Kiana Karami, Pennsylvania State University, Harrisburg, The Capital College

Systems thinking skills, framework, courses, and applications.

Advancing Engineering Education: Linking Systems Thinking Skills to the Tools through a Revised Framework

Mr. Amin Azad, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

Asher Hounsell

Student Goal Formulation in an Introductory Engineering Design Course through Systems Thinking Scenarios

Dr. Andrea Goncher-Sevilla, University of Florida

Dr. John Alexander Mendoza-Garcia, University of Florida

Dr. Mengyu Li, University of Florida

Quantifying the Ability of the Digital Engineering Factory to Address the Digital Engineering Competency Framework

Dr. Joe Gregory, The University of Arizona

Dr. Alejandro Salado, The University of Arizona

Decolonizing Stakeholder Analysis for Engineered Systems

Dr. Shamsnaz Virani Bhada, Worcester Polytechnic Institute

Sarah E. Stanlick, Worcester Polytechnic Institute

Integrating Model-Based Systems Engineering and Systems Thinking Skills in Engineering Courses

Prof. Kavitha Chandra, University of Massachusetts, Lowell

Dr. Sara Kraemer, Blueprint for Education

Emi Aoki, University of Massachusetts, Lowell

Flore Stecie Norceide, University of Massachusetts, Lowell

Dr. Ola Batarseh, Dassault Systemes

M349 - Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE) Technical Session 3

11:00 A.M. - 12:30 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE)

Towards a Philosophy of Engineering Laboratories

Dr. Michael Robinson, Saint Vincent College

Social Foundations of Education as a Model for Social Foundations of Engineering: Possibilities for Engaging the Philosophy of Engineering

Dr. Kathryn A. Neeley, University of Virginia

William J. Davis, University of Virginia

Dr. Bryn Elizabeth Seabrook, University of Virginia

Joshua Earle, University of Virginia

WIP: Development of a Framework to Support Technology-Life Balance in Undergraduate Engineering Students

Ms. Milana Hayley Grozic, University of Calgary; The University of British Columbia

Dr. Emily Ann Marasco, University of Calgary

Enhancing Petroleum-Engineering Education through Active Student Engagement, Hands-On Experience, and Technology Integration

Dr. Mohamed Fadlelmula, Texas A&M University at Qatar

Dr. Nayef Alyafei, Texas A&M University at Qatar

Dr. Albertus Retnanto, Texas A&M University at Qatar

Curriculum-embedded Epistemological Foundations in Nuclear Engineering

Haley Williams, University of California, Berkeley

Dr. Denia Djokic, University of Michigan

Raluca Olga Scarlat, University of California, Berkeley

M350 - Transfer Issues Between 2-Year Colleges and 4-Year Engineering and Engineering Technology Programs 1

11:00 A.M. - 12:30 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Jim Sizemore, Mesa Community College

Transfer issues between two-year colleges and four-year engineering and engineering-technology programs

Advancing Two-Year Degree Students Towards a Bachelor's Degree in Engineering Technology: A Pilot Study

Dr. Md. Ali Haider, Austin Peay State University

Dr. Hossain Ahmed, Austin Peay State University

Mahesh Kumar Pallikonda, Austin Peay State University

Prof. Ravi C. Manimaran, Austin Peay State University

The Critical Success Factors of Transfer Student Success at a Four-Year University

Dr. Jeyoung Woo, California State Polytechnic University, Pomona

Vertical Transfer Student Pathways into Engineering: A 20-Year Benchmarking Analysis at a Large Public Research-intensive Institution in Florida

Caroline Lubbe, University of Florida

Dr. Sindia M. Rivera-Jiménez, University of Florida

Justin Ortagus, University of Florida

Hope Allegra Allchin, University of Florida

Sofia Isabel Montiel, University of Florida

Work in Progress: Studying How Engineering Research Internships Affect Community College Students' Interest in and Intent to Complete Engineering Bachelor's Degrees

Ms. Janet Yowell, University of Colorado Boulder

Dr. Heidi G. Loshbaugh

Mr. Nick Stites, University of Colorado Boulder

Chris Anderson, University of Colorado Boulder

M351 - Women in Engineering Division (WIED) Technical Session 8: Leadership and Persistence

11:00 A.M. - 12:30 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Leigh McCue, George Mason University

The papers in this session address leadership, skill development, and persistence of women in engineering and computing.

Building Research, Teamwork and Professional Skills in an Engineering Summer Bridge Program: Reflections Towards an Allyship Model

Prof. Kavitha Chandra, University of Massachusetts, Lowell

Dr. Susan Thomson Tripathy, University of Massachusetts, Lowell

Dr. Sumudu Lewis, University of Massachusetts, Lowell

Nadia Sahila, University of Massachusetts, Lowell

Gender-Based Comparison of Creative Self-Efficacy, Mindset, and Perceptions of Undergraduate Engineering Students

Dr. Christine Michelle Delahanty, National Science Foundation

Technical Skill Development in Vertically-Integrated, Team-Based Engineering Courses: Promoting Equity Across Genders

Mr. Andrew Pierce, Purdue University

Nichole Ramirez, Purdue University

Dr. Carla B. Zoltowski, Purdue University

Dr. William "Bill" C. Oakes, Purdue University

The Academic Leadership for Women in Engineering Program: Impact on Personal Development, Leadership Advancement, and Networking

Rebeca Petean, Society of Women Engineers

Dr. Roberta Rincon, Society of Women Engineers

Rachel Porcelli, Society of Women Engineers

M352 - Community Engagement and Humanitarian Engineering: Creating Inclusive Engineers

11:00 A.M. - 12:30 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Alum Perspective Changes on Engineering Community-Engagement Experiences in EWB-USA

Paul A. Leidig P.E., Purdue University

Dr. William "Bill" C. Oakes, Purdue University

Creating Inclusive Engineers through Humanitarian Engineering Projects: Exploring the Experiences of Two Students through Interviews

Dr. Kirsten Heikkinen Dodson, Lipscomb University

Ms. René Marie Rosalie Marius, Lipscomb University

Mark Sedek, Lipscomb University

From Service to Engagement: Outcomes from the Implementation of Multiyear Human-centered Design Initiatives Across Engineering Courses to Improve Both Community-Partner and Student Outcomes

Dr. Adithya Jayakumar, The Ohio State University

Dr. Patrick John Sours, The Ohio State University

Dr. Kristen Conroy, The Ohio State University

Dr. Kadri Akinola Akanni Parris, The Ohio State University

The Formation of Engineers to Address Wicked Problems (FEW) Model: Investigating Impacts of a Humanitarian Engineering Minor on Students' Intercultural Competence

Dr. Patrick John Sours, The Ohio State University

Dr. Ann D. Christy P.E., The Ohio State University

Xinquan Jiang, The Ohio State University

M355 - Engineering Leadership Development Division (LEAD) Technical Session: Engineering Leadership Competencies and Skills

11:00 A.M. - 12:30 P.M., F149, OREGON CONVENTION CENTER

Sponsor: Engineering Leadership Development Division (LEAD)

A Case Study of Integrating Leadership Competencies in a Global Engineering Design Course: A Work in Progress

Anuli Ndubuisi, University of Toronto

Philip Asare, University of Toronto

Developing Diverse Leaders through Peer Teaching and Undergraduate Research: A Work in Progress

Prof. Mohamed Razi Nalim, Indiana University-Purdue University Indianapolis

Ms. Danka Maric, Indiana University-Purdue University Indianapolis

Mr. Mohammadhossein Jamshidnejad, Indiana University-Purdue University Indianapolis

Dr. Sharon Miller, Purdue University

Lauren Christopher, Indiana University-Purdue University Indianapolis

Christine Krull, Indiana University-Purdue University Indianapolis

Eric W. Adams, Indiana University-Purdue University Indianapolis

Shahrzad Ghadiri, Indiana University - Purdue University Indianapolis

Richard Vernal Sullivan, Indiana University-Purdue University Indianapolis

Cliff Campbell, Indiana University-Purdue University Indianapolis

Competency-based Engineering Leadership Development using a Bookend Approach

Stacie Edington, University of Michigan

Michael Dailey, University of Michigan

Characterization of Leadership Skills in Students: A Case Study in a Chilean Engineering School

Vicente Valenzuela-Riquelme, Universidad Andres Bello, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Chile

Camila Zapata-Casabon, Universidad Andres Bello, Chile

M356 - Military and Veterans Division (MVD) Technical Session 1

11:00 A.M. - 12:30 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

Moderators: David Feinauer, Virginia Military Institute; Jerry Dahlberg, University of Tennessee, Space Institute

Faculty and Staff Perceptions of Student Veterans Pursuing a Degree in Engineering

Dr. Robert J. Rabb P.E., Penn State University

Dr. Alyson G. Eggleston, Penn State University

Dr. Catherine Mobley, Clemson University

Dr. Angela Minichiello P.E., Utah State University

Dr. Ronald W. Welch P.E., The Citadel

Mr. Jerry Lynn Dahlberg Jr, University of Tennessee, Space Institute

Dr. David M. Feinauer P.E., Virginia Military Institute

Dr. B. "Grant" Crawford P.E., Quinnipiac University

Samuel Shaw, Utah State University

Veterans Assisting Veterans Using Peer-led Team Learning

Dr. David Paul Harvie, Embry-Riddle Aeronautical University-Worldwide

Ms. Kimberly A. Luthi, Embry-Riddle Aeronautical University-Worldwide

Monica Surrency, Embry-Riddle Aeronautical University-Worldwide

John K. Wilson, Embry-Riddle Aeronautical University-Worldwide

A Combat Action Video Goes Viral

Dr. William E. Genereux, Kansas State University, Salina

Zachary Allen Guillory, Kansas State University, Salina

Academic Parallels from a Military Merit List

Major Jason M. Newell, Embry-Riddle Aeronautical University

Bryan Watson, Embry-Riddle Aeronautical University

M357A - Tools to Integrate Transversal Skills: An Experiential Opportunity for Engineering Teachers

11:00 A.M. - 12:30 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Yousef Jalali, EPFL

Speaker: Mr. Yousef Jalali, EPFL

This special session invites participants to consider how to develop students' transversal competencies in engineering education. Despite broad agreement about the importance of transversal skills for engineering students, such as collaboration and communication skills, from instructors, industry and accreditation boards (ABET, 2023; ENAEE, 2023; Kolmos and Holgaard, 2019; Passow and Passow, 2017), there are complexities in how they can be operationalized and importantly whether students are actually acquiring relevant knowledge, skills, and attitudes. This session will assist educators to adopt innovative and effective strategies to address the required attributes in their courses.

This special session provides strategies to facilitate the explicit and deliberate integration of transversal skills in engineering courses. Participants will be introduced to a 3-phase framework (Isaac et al. 2023), which illustrates the importance of conceptual knowledge, declarative knowledge, and meta-level cognitive and emotional processes. Empirical work has shown that engineering instructors often overlook some of these key aspects required by students. The session will replicate the approach of this model, including case examples and micro-experiential learning situations (with LEGO blocks) that enable low-stakes experimentation and rapid feedback. Participants in this workshop will:

1. Reflect on their own practices for addressing transversal skills in their teaching

2. Improve their understanding of how to teach transversal skills

3. Analyze a case example on collaboration skills

The non-traditional format of the special session (i) facilitates the integration of experiential and interactive activities and (ii) provides an opportunity for more deeper reflection and discussion on transversal skills to support participants' ability to transform their own practice. The session will conclude with some evaluation data from students and the sharing of resources to allow participants moderate the workshop in their own contexts.

M357B - Faculty Development Division (FDD) Technical Session 1

11:00 A.M. - 12:30 P.M., F150, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Cassondra Wallwey, Virginia Polytechnic Institute and State University; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 1

Awakening Critical Consciousness in Engineering Education: Interdisciplinary Insights and Strategies for Faculty Development

Ms. Jameka Wiggins, The Ohio State University

Dr. Monica Cox, The Ohio State University

Examining the Implementation and Impact of Reflective Practices in Engineering Courses: Insights from Faculty and Teaching Assistants

Dr. Logan Andrew Perry, University of Nebraska, Lincoln

Mrs. Ibukunoluwa Eunice Salami, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Grace Panther, University of Nebraska, Lincoln

Mrs. Katie Mowat, University of Nebraska, Lincoln

Sessions on Faculty Ethics

Dr. Robert A. Linsenmeier, Northwestern University

Dr. Jennifer L. Cole, Northwestern University

WIP: Developing a Framework for Ethical Integration of Technology in Instruction

Prof. Helen Choi, University of Southern California

M357C - Faculty Development Division (FDD) Business Meeting

11:00 A.M. - 12:30 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Faculty Development Division (FDD)

FDD Business Meeting

M359 - Experiences and Perspectives in a Post-Affirmative Action Higher (Engineering) Education System

11:00 A.M. - 12:30 P.M., B118, OREGON CONVENTION CENTER

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

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

Speakers: Mr. Siqing Wei, Purdue University at West Lafayette (COE); Jerry Austin Yang, Stanford University; Mr. Marcus Melo de Lyra, The Ohio State University; Ms. Rachel Figard, Arizona State University; Dr. Bruk T. Berhane, Florida International University

Affirmative action (AA) policies in American history have been controversial due to ideological disagreements, particularly in prioritizing equality versus equity. Although affirmative action policies intend to dismantle all forms of discrimination, such as race, disability, gender identity, sexual orientation, ethnic origin, and age, race/ethnicity draws the most attention. Recently, the U.S. Supreme Court ruled against race-conscious admissions policies, effectively limiting affirmative action practices in higher education, including in engineering education.

While numerous efforts have been implemented to increase the representation of minoritized students in engineering education, the court ruling will not only cause substantial shifts in the administrative process and associated policy-making in the current engineering education landscape, but also will weigh on students' lived experiences encountering a climate that often favors cisgender, white, heterosexual, able-bodied men. Thus, it is crucial to have in-depth conversations about how students perceive the anti-affirmative action court decision and how they navigate their engineering education experiences within the current sociopolitical landscape. This panel will focus on the perceived implications and consequences of the court decision on students and their communities by centering current engineering education graduate students' experiences. The panel discussion will contribute to the higher education field, particularly the engineering education community, by elevating students' voices and perspectives to better prepare for the necessary culture and policy changes in the near future. Meanwhile, we hope to create a safe space for the student population to share untold and/or invisible stories associated with this court ruling.

M359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 1

11:00 A.M. - 12:30 P.M., A107, OREGON CONVENTION CENTER

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

(WIP) Persistence in an S-STEM project: Understanding the Intersectional Experiences and Identities of Women in Computing

Dr. Rachel Funk, University of Nebraska, Lincoln

Leilani Marie Pai, Denison University

Johan Benedict Cristobal, University of Nebraska, Lincoln

A Liberatory Co-Curricular Program for Engineering Students: Investigating Impacts and Limitations Through Alumni Perspectives

Bailey Bond-Trittipo, Florida International University
Dr. Stephen Secules, Florida International University
Jocelyn Garcia
Maria Oralia Tinoco Alegre, Florida International University
Malak Elaouinate, Florida International University
Andrew Green, Florida International University
Andres Tremante

A Systematic Literate Review of Racialized Stress, Distress, and Trauma for Black, Latin, and Indigenous Engineering Students

Dr. Elahe Vahidi, University of Cincinnati
Mark Okoth Onyango, University of Cincinnati
Kaitlyn Anne Thomas, University of Nevada, Reno
Whitney Gaskins, University of Cincinnati
Dr. Kelly J. Cross, Georgia Institute of Technology
Dr. Whitney Gaskins, University of Cincinnati

Accommodations for Disabled Students in STEM Fields: Research Considerations and a Literature Review

Sage Maul, Purdue University
Dr. Kirsten A. Davis, Purdue University
Dr. Senay Purzer, Purdue University
Prof. Ruth Wertz, Purdue University

Addressing Issues of Justice in Design Through System-Map Representations

Dr. Alan Cheville, Bucknell University
Dr. Stewart Thomas, Bucknell University
Dr. Rebecca Thomas, Bucknell University

Outsiders: Pathways and Perspectives from Engineering Education PhDs Outside Academia

Dr. Meagan C. Pollock, Engineer Inclusion
Ms. Hoda Ehsan, The Hill School
Dr. Sreyoshi Bhaduri, ThatStatsGirl
Dr. Lauren Thomas Quigley, IBM Research

M369 - Planning Meeting: Increasing Community College Engagement with ASEE

11:00 A.M. - 12:30 P.M., COLUMBIA 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: ASEE Headquarters; Two-Year College Division (TYCD)

ASEE will be holding a series of meetings to facilitate a national conversation about community college engineering education and associated issues around student transfer pathways. These meetings will also explore how ASEE can increase its value and appeal for community college engineering programs. Come join this kick-off conversation and help set the agenda for upcoming meetings.

M374 - Engineering Deans Council (EDC) Public Policy Committee Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 6, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Deans Council (EDC)

EDC Public Policy Committee Meeting

M381A - Safe Zone Ally Training - Level 1

11:00 A.M. - 12:30 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Stephanie Farrell, Rowan University

Did you know…

- 1 in 5 LGBTQIA+ students fear for their physical safety on college campuses? 1 in 3 LGBTQIA+ students are made to feel uncomfortable in our classrooms?

- LGBTQIA+ engineering students are more likely than women, underrepresented minorities, and non-LGBTQIA+ peers to report a chilly climate?

- STEM departments are lagging way behind other disciplines in the adoption of LGBTQIA+-inclusive practices?

You can help change this! Safe Zone Workshops are interactive, research-informed workshops for students, faculty, and the professional community, during which participants will 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.

Safe Zone Level 1 focuses on understanding LGBTQIA+ concepts and the coming-out process, responding to bias, and adopting simple strategies for building an inclusive environment. For more advanced content, look for Safe Zone 2 or 3 sessions.

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, please visit https://lgbtq.asee.org.

M381B - Diversity, Equity, and Inclusion: 100

11:00 A.M. - 12:30 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Christina Anlynette Alston, University of Colorado Boulder; Mrs. Brianna Benedict McIntyre, National Action Council for Minorities in Engineering, Inc.

Diversity, Equity, and Inclusion starts with us. The session aims to answer the questions: What is DEI? Why should I care about it? What work do I need to do to become a more equitable educator? In this workshop, participants will identify ways in which we can expand our awareness through self-analysis. Participants will engage in learning activities that provide an introductory overview of DEI, including reflection on their identities, privileges, biases, spheres of influences, and beliefs related to diversity, equity, and inclusion.

M381C - A Bottom-Up Approach to Integrating Social and Environmental Justice in Engineering Curricula

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM D , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Rebekah Oulton P.E., California Polytechnic State University, San Luis Obispo; Dr. Amro El Badawy, California Polytechnic State University, San Luis Obispo

Participants will embark on an insightful journey to understand how a coalition of undergraduate students and faculty at the Civil and Environmental Engineering (CE/ENVE) Department at California Polytechnic University San Luis Obispo integrated social and environmental justice into their program's educational objectives (PEOs) and engineering curricula. Participants will gain insights into the student-driven, bottom-up process used to update and modernize the CE/ENVE PEOs. The updated PEOs encompass social and environmental justice and cover critical aspects of engineering practice like resiliency, systems-thinking, and inclusive communication. We will discuss the challenges and lessons learned during this transformative journey, offering a comparison of the old and updated PEOs. Attendees will uncover the strategies employed to integrate the updated PEOs into the CE/ENVE curriculum, supported by real-world examples and measurable outcomes.

M382 - Threading the Needle: Accreditation and DEI

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: Undergraduate Experience Committee (UEC); Civil Engineering Division (CIVIL)

Moderators: Cynthia Paschal, Vanderbilt University; John-David Yoder, Ohio Northern University

Speakers: Prof. Stephen M Phillips P.E., Arizona State University; Damon Williams, Georgia Institute of Technology; Dr. Leonard J. Bohmann P.E., Michigan Technological University

As engineering educators, we understand that to prepare the next generation of engineers, we must move beyond those practices that fostered the success of a narrow demographic and produced engineers with limited experience in how to collaborate in a diverse world, lead across differences, and draw on multiple perspectives to innovate creatively. The concomitant importance of diversity, equity, and inclusion (DEI) in a successful engineering education program is increasingly reflected in accreditation criteria related to DEI. What strategies can we consider to meet these criteria while complying with the requirements of legislation, executive orders, and court rulings? In this combination panel and small group discussion event, you will learn about ABET accreditation trends related to DEI and share ideas about

how to support DEI in engineering education without running afoul of restrictions relevant to your institution. This session will be valuable to programs undergoing accreditation review in the next few years.

Panelists include:

Stephen M. Phillips, Arizona State University

Damon Williams

Leonard Bohmann

M393 - Conducting NSF-Funded Research Together on Early Engineering Experiences: Perspectives from Community Partners (CP12)

11:00 A.M. - 12:30 P.M., B119, OREGON CONVENTION CENTER

Sponsors: ASEE Commission on P12 Engineering Education; Equity, Culture & Social Justice in Education Division (EQUITY); Educational Research and Methods Division (ERM); Pre-College Engineering Education Division (PCEE)

Moderators: Gina Svarovsky, University of Notre Dame; Scott Pattison

Speakers: Julie Allen; Sara Lockwood; Siobhan O'Malley; Maria D. Quijano

Exploring engineering with young learners has increasingly become an area of interest for the engineering education field. While much of this research has been conducted within the formal school context, young children have many opportunities to learn beyond the classroom, in settings such as community programs, libraries and museums, and the home. Investigating engineering activities in these spaces can provide essential knowledge for the field that advances our understanding of how young people can begin to engage in engineering at an early age, how these interactions can be catalyzed and extended by families, and how contextualizing these activities in meaningful and relevant ways can change the way both adults and children connect to and identify with engineering overall.

Conducting research focused on young learners in these natural environments commonly requires deep and authentic collaboration with community partners. In this panel, researchers from the University of Notre Dame and TERC invite Portland-based partners from Head Start at Mt. Hood Community College and the Ready, Set, Go! Program at Metropolitan Family Service to share their experiences as members of the project leadership teams that steered two NSF-funded studies. Over the past four years, these studies have explored developing Spanish/English bilingual engineering activities and programs for families with young children as well as working with early childhood educators on implementing engineering into their classrooms and programs. Specifically, the community partner panelists will share the impacts of the research on their organizations, discuss an asset-based mindset for early childhood and family-based engineering education, and offer a chance for audience members to reflect, learn, and set goals for rich and meaningful community involvement in PreK-12 engineering education research.

This panel represents a unique opportunity for the ASEE community to hear directly from community partners engaged in the collaborative leadership of engineering education research projects. In addition, it also provides a complementary, lived-experience counterpart to the research papers published in ASEE about the two programs: one abstract is submitted for 2024 ASEE, and a series of prior papers on the projects are available on PEER.

M394A - SPONSOR TECH SESSION: Everything You've Wanted to Know About EOP: Panel and Q&A with EOP Funders and Practitioners, Presented by ABET

11:00 A.M. - 12:30 P.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

The climate crisis and environmental degradation are among our greatest challenges. Despite the considerable influence engineers possess to address or exacerbate these challenges, engineering students are not typically graduating with the skills, knowledge, experiences and mindsets needed to tackle current and future environmental and social challenges. Demand and urgency is growing from students and industry to better prepare graduating engineers to protect and improve our planet and our lives.

Engineering for One Planet (EOP) is a collaborative effort to address this gap by supporting the integration of fundamental climate and sustainability topics into

all engineering disciplines. Catalyzed by The Lemelson Foundation and VentureWell in 2020 (with contributions from hundreds of collaborators that span geographies, lived experiences, and sectors), EOP strives to ensure that all engineers are equipped with core skills in social and environmental sustainability, such as systems-thinking, lifecycle assessment, and related professional and leadership skills, such as communication, interdisciplinary teamwork and critical thinking.

The EOP initiative fosters curricular transformation through three interrelated approaches: 1) developing and sharing teaching resources through community feedback and vetting in diverse courses and programs, 2) funding faculty change efforts and supporting faculty capacity-building, and 3) activating and supporting collaboration among diverse stakeholders across sectors.

This session will provide participants a comprehensive understanding of the teaching and funding resources available and lessons learned from educators using EOP resources to achieve curricular change. Presenters from ASEE, ABET, NSF, EOP and academic institutions will share their best practices and lessons learned from leveraging EOP resources to integrate sustainability into engineering courses and programs, as well as across and between institutions. Audience engagement through Q&A will be a priority in this session.

Speakers:

Dr. Michael Milligan, CEO ABET

Stephanie Harrington, Director Constituent Relations, ABET and Adjunct Engineering Faculty, Northern Virginia Community College

Matthew Verleger, National Science Foundation, the Engineering Education & Centers division, Embry-Riddle Aeronautical University

Ro Worthy, Assistant Chair, Civil and Environmental Engineering Department, Kennesaw State University

Dr. Sarah DeLeeuw, Research Projects Director at ASEE

Dr. Andrea Welker, PE, is the Dean of the School of Engineering and a Professor of Civil Engineering at The College of New Jersey

Cindy Anderson, Alula Consulting and strategy consultant for Engineering for One Planet with The Lemelson Foundation

M394B - SPONSOR TECH SESSION: Fostering Student Success: How Inter- and Transdisciplinary Programs, an Emphasis on Mental Wellness, and other Student-centered Pedagogy Approaches Increase Student Retention - Presented by Oregon State University

11:00 A.M. - 12:30 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Discover the unique initiatives of the Oregon State University College of Engineering that empower engineering students from day one. A shared first-year experience for all engineering-interested students launches them into career exploration, real-world problem-solving, and community building. A transcript-visible certificate program immerses students in real-world problems with the support of academic spaces and resources. An engineering-specific mental wellness program accompanies students throughout their engineering journey. These and other strategies underscore Oregon State University's commitment to diversity, equity, inclusion, and belonging. Explore distinctive curricular and co-curricular experiences, experiential learning techniques, and inclusive pedagogies. Oregon State Engineering will present a range of initiatives that have significantly contributed to student success, well-being, and increased retention.

Presenters: Natasha Mallette, PhD, PE, Director of Engineering+, Oregon State University; Sarah Oman, PhD, Senior Instructor I, Oregon State University; Ingrid Scheel, Instructor, Oregon State University; Shannon Frasca, LCSW, Wellness Coordinator and Counselor, Oregon State University

M469A - Free Time - Lunch Available for Purchase in the Exhibit Hall

12:30 P.M. - 1:30 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Take advantage of this free time to peruse the exhibits and poster papers, as well as enjoying the different tasty fare Portland has to offer.

Menu items include:

Portland Roasting I

Portland Roasting II

DragonFire Wok

Dragon Boat Grill

EA Pacific Crust Pizza Co

Ginkoberry Marketplace

EA Bento

Mac + Cheese Cart

M402 - Architectural Engineering Division Business Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Architectural Engineering Division (ARCHE)

M403 - Ecological Engineering Education: Frameworks and Perspectives

1:30 P.M. - 3:00 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Moderator: Deepak Keshwani, University of Nebraska - Lincoln

Speakers: Trisha Moore, Kansas State University; Mark C. Stone, University of Nebraska - Lincoln; David Michael Blersch, Auburn University; Prof. David A. Vaccari P.E., Stevens Institute of Technology (School of Engineering and Science)

An invited panel will discuss their vision for ecological engineering and provide insight into challenges and opportunities when integrating ecological engineering content with agricultural, biological, environmental, and similar engineering content areas. Attendees will have opportunities to share their thoughts and ideas on current and needed instructional frameworks for ecological engineering education. This session will provide an opportunity to follow up on ideas offered during the Biological and Agricultural Engineering Division's technical session (M303), Engineering Education Issues Relevant to Agricultural, Biological and Ecological Engineering, scheduled for Monday, 11:00 AM - 12:30 PM.

Panelists:

David Blersch, Auburn University

Trisha Moore, Kansas State University

David A. Vaccari, Stevens Institute of Technology

Mark Stone, University of Nebraska, Lincoln

Moderator: Deepak Keshwani, University of Nebraska, Lincoln

Keshwani also serves as a Faculty Fellow for Student Success in the College of Agricultural Sciences and Natural Resources. In addition to teaching and advising both undergraduate and graduate students, Keshwani also mentors the AG futures learning community in leadership, service, and civic engagement.

M404 - Empowering Biomedical Engineering Educators: Navigating Funding Opportunities for Innovation and Growth

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderator: Tanya Nocera, The Ohio State University

Speakers: Dr. Jennifer R. Amos, University of Illinois at Urbana - Champaign; Dr. Joe Tranquillo, Bucknell University; Dr. Michele J. Grimm, State University of New York at Albany

Are you trying to find ways to fund your ideas? The BED invites all members of the biomedical engineering community together for a panel and smaller group dialogue on different ways to seek out funding whether it is educational research grants, program development, professional development, or funding for student projects like capstone.

M405A - Improving Student

Problem Solving and Performance

1:30 P.M. - 3:00 P.M., F152, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Laura Ford, The University of Tulsa; Sakul Ratanalert, Columbia University in the City of New York

Integrating Problem-Solving Studio into 75-minute Chemical Reaction Kinetics Sessions

Dr. Huan Gu, University of New Haven

Leveraging a Token Economy System to Motivate Concept Practice in a Fluid Dynamics Classroom

Mr. Sanha Kim, University of Virginia

Steven R. Caliari, University of Virginia

Dr. Roseanne M. Ford, University of Virginia

Effects of Problem Type on Completion and Attempts on Auto-Graded Homework Problems for Material and Energy Balances

Samantha Yanosko, University of Toledo

Grant Valentine, University of Toledo

Prof. Matthew W. Liberatore, University of Toledo

Do Lightly-Flexible Deadlines Support Student Performance?

Prof. Joshua A. Enszer, University of Delaware

Quantitative and Qualitative Analysis of a Curriculum-Wide Chemical Process Project

Dr. Alyssa Powell, University of California, San Diego

Dr. Justin Paul Opatkiewicz, University of California, San Diego

M405B - Laboratory and Research Skill Development

1:30 P.M. - 3:00 P.M., COLUMBIA 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Chemical Engineering Division (ChED)

Moderators: Maddalena Fanelli, Michigan State University; Sean Holleran, University of Pennsylvania

Building Better Engineers: Teaching Chemical Engineers to Troubleshoot in the Laboratory

Dr. George Prpich, University of Virginia

Dr. Natasha Smith, University of Virginia

Caroline Elizabeth Crockett, University of Virginia

Anukriti Shrestha, University of Virginia

Project-Based Learning and Industry Collaborations to Integrate Process Safety in an Undergraduate Chemical Engineering Laboratory

Dr. Carlos Landaverde Alvarado, University of Texas at Austin

Promoting Chemical Engineering Identity through Student Agency and Experiment Relevance

Dr. Vanessa Svihla, University of New Mexico

Madalyn Wilson-Fetrow, University of New Mexico

Prof. Stephanie G. Wettstein, Montana State University, Bozeman

Ms. Catherine Anne Hubka, University of New Mexico

Dr. Jennifer R. Brown, Montana State University, Bozeman

Prof. Eva Chi, University of New Mexico

A Departmental Research Methods Course to Support New Undergraduate Researchers

Dr. Ashlee N. Ford Versypt, University at Buffalo, The State University of New York

Dr. Jeffrey R. Errington, University at Buffalo, The State University of New York

Dr. David A. Kofke, University at Buffalo, The State University of New York

Dr. Maura Sepesy, University at Buffalo, The State University of New York

Dr. Mark T. Swihart, University at Buffalo, The State University of New York

M406 - Civil Engineering Division (CIVIL) Technical Session - Effective Teaching 1

1:30 P.M. - 3:00 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Monica Palomo, California State Polytechnic University, Pomona; Anthony Battistini, Angelo State University

Creating a Pipeline of Civil Engineering Students Through Innovative Summer Course

Jose Capa Salinas, Purdue University

Dr. Morgan R. Broberg, Purdue Applied Research Institute

Need for Strengthening the Transferability Skills in Undergraduate Civil Engineering Students

Dr. Roshina Babu, University of Utah

Prof. Praveen A, APJ Abdul Kalam Technological University Kerala

Pedagogical Changes to a Capstone Course to Foster

Refinement of Professional Skills

Dr. Corinna Marie Fleischmann P.E., United States Coast Guard Academy

Prof. Hudson V. Jackson P.E., United States Coast Guard Academy

Cmdr. Brian Maggi P.E., United States Coast Guard Academy

Dr. Kassim M. Tarhini P.E., United States Coast Guard Academy

Syllabi Indicators of Learning Community Supports in Civil Engineering Classrooms

Jessica Momanyi, William Paterson University

Dr. Grace Panther, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Work-In-Progress: What Goes into an Engineering Decision: An Infrastructure Decision-Making Game for Exploratory Equity Learning (Phase 2 Multiple Stakeholders)

Abigail Louise Beck, University of Illinois Urbana-Champaign

Prof. Eun Jeong Cha, University of Illinois Urbana-Champaign

Luc Paquette, University of Illinois Urbana-Champaign

Eric G. Shaffer, University of Illinois Urbana-Champaign

M407 - College Industry Partnerships Division (CIP) Technical Session 3

1:30 P.M. - 3:00 P.M., C126, OREGON CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

Moderators: Mahesh Aggarwal, Gannon University; Magdalini Lagoudas, Texas A&M University

Building Leadership Capacity in Rising Engineering Professionals through Engagement as Career Mentors: Influencing a Self-Directed Learning Mindset

Dr. J. Eliseo De León, New Mexico State University

Dr. Patricia A. Sullivan, New Mexico State University

Sara Patricolo, New Mexico State University

Understanding Organizational Cultural Influences in Multisector Multi-Team Systems

Dr. Florence Emilia Castillo, University of Texas at Dallas

Dr. Yvette E. Pearson P.E., University of Texas at Dallas

Dr. Sherri S. Frizell, Prairie View A&M University

Sheryl Skaggs, University of Texas at Dallas

Dr. Tiffany Bisbey, The George Washington University

Women's Engineering Career Stories: Looking for a Pathway Back

Dr. Christina A. Pantoja, Campbell University

Dr. Joyce B. Main, Purdue University at West Lafayette (COE)

A Framework for Students' Professional Development When Meeting with Employers in a Microelectronics Workforce Development Program

Benjamin L. Burson, Purdue University at West Lafayette (COE)

Prof. Eric Holloway, Purdue University at West Lafayette (COE)

M408 - ML and Generative AI Tools and Policies

1:30 P.M. - 3:00 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Tammy VanDeGrift, University of Portland

From syllabus policies to AI-assisted learning and generative AI tools, the papers in this session highlight various machine learning and artificial intelligence systems and policies that support engineering education.

Machine Learning Tools in the Technical Writing Classroom: A Modular Approach

Dr. Alyson G. Eggleston, Pennsylvania State University

Dr. Robert J. Rabb P.E., Pennsylvania State University

A Department's Syllabi Review for LLM Considerations Prior to University-standard Guidance

Lucas J. Wiese, Purdue University at West Lafayette

Dr. Alejandra J. Magana, Purdue University at West Lafayette

Bark Plug: The ChatGPT of the Bagley College of Engineering at Mississippi State University

Dr. Jason M. Keith, Mississippi State University

Amin Amirlatifi, Mississippi State University

Shahram Rahimi

Subash Neupane, Mississippi State University

Sudip Mittal

How AI Assisted K-12 Computer Science Education: A Systematic Review

Zifeng Liu, University of Florida

Rui Guo, University of Florida

Xinyue Jiao, New York University

Xueyan Gao, University of Florida

Hyunju Oh, University of Florida

Wanli Xing, University of Florida

Revolutionizing Engineering Education: The Impact of AI Tools

on Student Learning

Dr. Sofia M. Vidalis, Pennsylvania State University

Dr. Rajarajan Subramanian, Pennsylvania State University

Dr. Fazil T. Najafi, University of Florida

M409 - Student Engagement in Construction Education

1:30 P.M. - 3:00 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Luciana Debs, Purdue University Programs; Tianjiao Zhao, East Carolina University

Impact of an Industrial Internship on Construction Students' Sense of Belonging

Dr. Kimberly Grau Talley P.E., Texas State University

Dr. Bobbi J. Spencer, Texas State University

Breaking Barriers: Attracting Female Students to Construction Engineering and Management Undergraduate Programs

Prof. Namhun Lee, Central Connecticut State University

Leveraging an Active-Learning Approach through Online Courses to Foster Sustainable, Equitable, and Resilient Infrastructure Concepts

Miss Rubaya Rahat, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Redefining Assessment: Implementing an XR Framework for Accreditation in Construction Education

Dr. Hariharan Naganathan, Wentworth Institute of Technology

John Cribbs Ph.D., Wentworth Institute of Technology

M411 - Employer Perspectives: Building Bridges with Academia

1:30 P.M. - 3:00 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Sandra Brabb, Washington State University

Join us for an insightful panel discussion where leading engineering employers share their perspectives on strengthening the connection between industry and academia. This session will explore various aspects of collaboration, curriculum development, and the evolving needs of the engineering workforce. Our panelists will discuss the most effective forms of partnership, the integration of emerging technologies into educational programs, and the importance of internships and co-op programs. They will also highlight the value of soft skills, continuous learning, and diversity and inclusion initiatives. Gain valuable insights into how academic institutions can better prepare students for successful careers in engineering and stay ahead of future industry trends. This is an invaluable opportunity for educators, students, and professionals to engage in a meaningful dialogue and forge stronger connections between the classroom and the workplace.

M413 - Design in Engineering Education Division (DEED) - Use of Technology in Design Education

1:30 P.M. - 3:00 P.M., COLUMBIA 2 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Samuel Dickerson, University of Pittsburgh

Using AI Interactive Interfaces in Design of Machine Elements Education

Can Uysalel, University of California, San Diego

Zachary Fox, University of California, San Diego

Maziar Ghazinejad, University of California, San Diego

Affordances of Large Language Models in Design Activity

David Prohofsky, South Dakota School of Mines and Technology

Dr. Micah Lande, South Dakota School of Mines and Technology

An Exploration of Game-Based Learning in Enhancing Engineering, Design, and Robotics Education via "The Legend of Zelda: Tears of the Kingdom"

Prof. Ryan D. Sochol, University of Maryland

Dr. Mohammad Fazelpour, University of Maryland

Influential Factors in the Adoption of Wearable and Environmental IoT-Enabled Smart Devices and Application to Cognitive-Affective Engineering Design

Dr. Lisa Massi, University of Central Florida

Salih Safa Bacanli, University of Central Florida

Dr. Pamela J. Wisniewski, Vanderbilt University

Dr. Damla Turgut, University of Central Florida

Effects of Using Computer-Aided Drawing Programs to Implement Sustainable Engineering Design Principles on First-Year Engineering Students

Dr. Burcu Ozden, Pennsylvania State University

Muge Olgun Baytas

M414A - Professional Listening Practice - A Basic Thematic Analysis Technique for Use in Research, Teaching, and Assessment

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

M414B - Educational Research and Methods Division (ERM) Technical Session 2

1:30 P.M. - 3:00 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jennifer Brown, Clemson University

Enhancing Teamwork Skills in STEM Education: A Behavioral Theory-Based Approach

Tazim Ahmed, The University of Texas at Arlington

Syed Mufid, The University of Texas at Arlington

Dr. Shuchisnigdha Deb, The University of Texas at Arlington

Dr. Mahmudur Rahman, The University of Texas at Arlington

Enhancing Thermodynamics Learning with a Modified Lab Experiment

Dr. Ziliang Zhou, California Baptist University

Dr. Xiuhua Si, California Baptist University

Students' Use of Engineering Judgment on Undergraduate Student Project Teams

Jack Boomer Perry, University of Michigan

Emily Buten, University of Michigan

Dr. Aaron W. Johnson, University of Michigan

Teaching Effective Communication for Teamwork

Dr. Joanna Tsenn, Texas A&M University

Jonathan Weaver-Rosen, Texas A&M University

Mohammad Waqar Mohiuddin

Dr. Shadi Balawi, Texas A&M University

Dr. Carlos R. Corleto, Texas A&M University

Why are we here? A Study of Student Perspectives on Attendance in a Combined Lecture and Laboratory Course

Dr. Kara Bocan, University of Pittsburgh

Identifying Educational Communication Patterns through Social Media Interactions: The Case of Engineering Education in Oklahoma

Asif Mohaisin Sadri, International Islamic University, Malaysia

Dr. Arif Mohaimin Sadri, University of Oklahoma

Mr. Khondhaker Al Momin, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Tahrima Rouf, University of Oklahoma

M414C - Educational Research and Methods Division (ERM) Technical Session 3

1:30 P.M. - 3:00 P.M., A106, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Lorena Grundy, Tufts University

Investigating Undergraduate Engineering Students' Motivations: An Early-Stage Analysis

Ribhav Galhotra, Nanyang Technological University

Panting Yu, The University of Edinburgh

Jiafei Wang, The Education University of Hong Kong

Dr. Ibrahim H. Yeter, Nanyang Technological University

Latina Engineering Student Graduate Study Decision Processes—Development and Initial Results of a Mixed-Methods Investigation

Dr. Bruce Frederick Carroll, University of Florida

Dr. Janice Mejía, Northwestern University

Dr. Kent J. Crippen, University of Florida

Sheila Castro, University of Florida

Promoting Persistence: Providing Support for HBCU Students from Low-Income Backgrounds

Dr. Brittany Boyd, American Institutes for Research

Dr. Jing Yan, Tennessee State University

Dr. Taylor Lightner, QEM Network

Mercy Mugo

Ivory A. Toldson, Howard University

Dr. Lin Li P.E., Tennessee State University

WIP: Accomplices and Allies: The Role of Chosen Family in Empowering Engineering Students

Sowmya Panuganti, Purdue University

Dr. Justin Charles Major, Rowan University

Work-in-Progress: Human Capital Formation as a Framework for Entrepreneurship and Venture Design Education

Dr. Helen L. Chen, Stanford University

Ade Mabogunje, Stanford University

Work-in-Progress: Effect of Instructional Practices on Students' Engagement and Performance

Mr. Umer Farooq, Texas A&M University

Dr. Saira Anwar, Texas A and M University

M414D - Educational Research and Methods Division (ERM) Technical Session 29

1:30 P.M. - 3:00 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Patrick Cunningham, Rose-Hulman Institute of Technology

Characterizing Teamwork Dynamics and Computational Model-Based Reasoning in Biomedical Engineering Projects

Abasiafak Ndifreke Udosen, Purdue University

Dr. Alejandra J. Magana, Purdue University

Elsje Pienaar, Purdue University

Effectiveness of Peer Led Team Learning in Online Engineering Courses

Dr. David Paul Harvie, Embry-Riddle Aeronautical University

Ms. Kimberly A. Luthi, Embry-Riddle Aeronautical University

Monica Surrency, Embry-Riddle Aeronautical University

John K. Wilson, Embry-Riddle Aeronautical University

Exploring Teamwork Experiences in Collaborative Undergraduate Research (REU) Programs through Tuckman's Group Development Theory

Sakhi Aggrawal, Purdue University

Dr. Lisa Bosman, Purdue University

Dr. Alejandra J. Magana, Purdue University

Improving Peer Feedback in Project-Based Learning Contexts: An Investigation into a First-Year Engineering Intervention

Ms. Katherine Drinkwater, Virginia Polytechnic Institute and State University

Olivia Ryan, Virginia Polytechnic Institute and State University

Marin Jayne Fisher Hale, Virginia Polytechnic Institute and State University

Susan Sajadi, Virginia Polytechnic Institute and State University

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Initial Validity Evidence for a Survey of Skill and Attitude Development on Engineering Teams

Dr. Justin Charles Major, Rowan University

Dr. Richard Tyler Cimino, New Jersey Institute of Technology

Multimodal Communication in Engineering Discourse and Epistemologies: How Speech and Gesture Shape Expressions of Engineering Conceptualizations

Mr. Matthew M. Grondin, University of Wisconsin, Madison

Michael I. Swart, University of Wisconsin, Milwaukee

Prof. Mitchell Nathan, University of Wisconsin, Madison

M414E - FIE Steering Committee: Executive Session

1:30 P.M. - 3:00 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Educational Research and Methods Division (ERM)

Academia-Industry Connections, Advocacy and Policy, Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College

M415 - NSF-Sponsored Projects for Electrical Engineering and Computing Education

1:30 P.M. - 3:00 P.M., G129, OREGON CONVENTION CENTER

Sponsors: Electrical and Computer Engineering Division (ECE); Computers in Education Division (COED)

Moderator: Huihui Wang, IEEE Educational Activities

Speakers: Dr. Mahnas Jean Mohammadi-Aragh, Mississippi State University; Dr. Cynthia J. Finelli, University of Michigan; Dr. Susan M. Lord, University of San Diego; Prof. Jill K. Nelson, George Mason University

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 questions from the audience.

M4195 - DSA Technical Session 2

1:30 P.M. - 3:00 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Sagar Kamarthi, Northeastern University; Anuja Kamat, Wentworth Institute of Technology

Incorporating Data Science into Energy Education

Integrating Data Science into the Pipeline Building Toward a Diversified Workforce in Nuclear Energy and Security

Dr. Xiang Zhao, Alabama A&M University

Dr. Mebougna L. Drabo, Alabama A&M University

Application of Data Analysis and Visualization Tools for U.S. Renewable Solar Energy Generation, Its Sustainability Benefits, and Teaching In Engineering Curriculum

Mr. Ben D. Radhakrishnan, National University

Mr. James Jay Jaurez, National University

Nelson Altamirano, National University

A Qualitative Study of Engineers' Perception of Variability as 'Error'

Emma Fox, Olin College of Engineering

Dr. Zachary del Rosario, Olin College of Engineering

M4195A - Healthcare Data Science for Engineering Education

1:30 P.M. - 3:00 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Speakers: Sreenath Chalil Madathil, State University of New York at Binghamton; Dr. Md Fashiar Rahman, University of Texas at El Paso; Michael Pokojovy, Old Dominion University

The Healthcare Data Science for Engineering Education Workshop aims to provide engineering educators with the necessary knowledge and skills to use healthcare data science to improve their teaching and research. The present session will start with the basics of healthcare data science, including, but not limited to, different types of healthcare data and various challenges of working with healthcare data.

The workshop will also include a hands-on demo of the All of Us Research Workbench, a data science platform for healthcare analytics and research. Participants will learn how to use the workbench to access, pre-process, and analyze healthcare data, develop predictive models, and visualize the results. We also present a case study utilizing medical imaging for ground truth annotation and clinical diagnostics. The workshop will discuss how healthcare data science can be leveraged to develop new courses, improve existing courses, and conduct research in industrial and systems engineering, data science, and other fields. Participants will be encouraged to share their ideas and experiences and learn how to apply healthcare data science in their work from other engineering educators. The workshop targets engineering educators at all experience levels, from those new to healthcare data science to those successfully using it in their teaching and research.

Free ticketed event

M420A - Special Panel Session: Introduction to the Upcoming International Handbook of Engineering Ethics Education

1:30 P.M. - 3:00 P.M., COLUMBIA 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Ethics Division (ETHICS)

Speaker: Prof. Shannon Chance, University College London

This panel session provides a preview of the *International Handbook of Engineering Ethics Education*, slated for release by Routledge in late 2024. As the field of Engineering Ethics Education (EEE) continues to mature and attract a diverse cohort of researchers, the handbook constitutes a valuable resource for those knowledgeable in the domain as well as newcomers.

The handbook provides a comprehensive review of the existing research on EEE, serving as a central repository for teaching, research, and curriculum management in engineering and its specialized subset of engineering ethics. Seasoned academics will appreciate this consolidated resource, while those new to engineering education and research can swiftly immerse themselves in the field, gleaning foundational insights.

The handbook is particularly instructive for new educators in the realm of ethics in engineering education, however. It offers guidance on incorporating research insights into pedagogy and showcases methods for conducting in-classroom educational research. For researchers, the content inspires new avenues for exploration and fosters global expert connections.

Boasting contributions from 115 international authors at the vanguard of EEE, the handbook is structured around six pivotal themes:

1. Foundations

2. Interdisciplinary Contributions

3. Teaching Methods

4. Accreditation

5. Ethical Issues in Varied Engineering Disciplines

6. Assessment

The panel will be spearheaded by three of the handbook's editors, and will include several distinguished chapter authors.

M421 - Engineering Libraries Division Lightning Talks

1:30 P.M. - 3:00 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Libraries Division (ELD)

Moderators: Qianjin Zhang, The University of Iowa; Shelby Hallman, University of California, Los Angeles

Join us for ELD members' and sponsors' talks.

M422 - Preparing Engineering Management Professionals for the Future of Work: Emerging Trends and Curricular Needs

1:30 P.M. - 3:00 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderators: Priyadarshini Pennathur; Amirmasoud Momenipour, Rose-Hulman Institute of Technology; Arunkumar Pennathur, University of Texas at El Paso

Speakers: Laila Cure; Mohammad Hossein Jarrahi, University of North Carolina at Chapel Hill; Dr. Brissa Yazmin Quiroz, California State University, Fresno

Engineering-management professionals not only need to acquire training and expertise in using emerging technologies and implementing work policies and processes that will govern the successful functioning of future work systems, but they also need to be nimble and stay abreast of state-of-the-art managerial tools and techniques and become adept in providing leadership, fostering innovation, managing change in the organization, and enabling their workforce to succeed in future work systems. The critical and urgent educational and training needs for engineering managers prompted by recent technologies that will be part of future work, workers, workplaces and work systems challenges us to think about how best we can revamp our engineering and engineering-management curricula to better prepare engineering-management professionals. The panelists are engineering management and industrial-engineering educators; research scholars investigating the future of work; an engineering student who will soon join the future workforce; and an industry expert from a technology company driving the changes seen in future work systems. They will share their unique perspectives during this session, discuss emerging trends in the future of work which need attention from engineering management educators, and lay forth future-of-work challenges and opportunities. The session will stir debate and discussion about the best ways forward to reshape the educational content and pedagogies that may be needed to equip engineering-management professionals for being effective and nimble in their work in future work systems.

M423A - Panel: AI and Engineering Technology Education: What, Why, How?

1:30 P.M. - 3:00 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Mohammad Uddin, East Tennessee State University; Keith Johnson, East Tennessee State University

Speakers: Mr. Jody L. Alberd, Austin Peay State University; Yume Menghe Xu, Tufts Center for Engineering Education and Outreach; Dr. Raju S. Dandu, Kansas State University - Polytechnic Campus; Dr. Meenakshi Narayan, Miami University; Mr. Sidney E Martin III, Saint Petersburg Junior College

The Future of Learning: Harnessing Generative AI for

Enhanced Engineering Technology Education

Mr. Jody Lee Alberd, Austin Peay State University

Mahesh Kumar Pallikonda, Austin Peay State University

Prof. Ravi C. Manimaran, Austin Peay State University

Reshaping Engineering Technology Education: Fostering Critical Thinking through Open-Ended Problems in the Era of Generative AI

Dr. Meenakshi Narayan, Miami University

Dr. Lokesh Kumar Saharan, Gannon University

M424B - Entrepreneurship & Engineering Innovation Division Technical Session 2

1:30 P.M. - 3:00 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Brad Putman, Bucknell University; Renee Rottner

Fostering Creativity and Innovation in Engineering Education

On the Potential Role of Artistic Process Workshops to Develop Creative Thinking Skills of Engineering Students: Preliminary Results and Insights

Prof. Elif Akcali, University of Florida

Braxton Rae, University of Florida

Tobias Lodemann, University of Florida

Exploring the Relationships between Artistic Creativity and Innovation Attitudes in Engineering Students

Dr. Azadeh Bolhari, University of Colorado Boulder

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Anvie Gowrishankar, University of Colorado Boulder

Maya Leizerovich, University of Colorado Boulder

Shane Gavney, University of Colorado Boulder

Richard W. Saxton, University of Colorado Boulder

Cultivating Innovators—Unveiling the Hidden Potential of "Innovation Through Making" in Engineering Education

Mitra Varun Anand, Worcester Polytechnic Institute

Dr. Curtis Abel, Worcester Polytechnic Institute

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

Developing Engineering Identity Through Story

Dr. Michelle Marincel Payne, Rose-Hulman Institute of Technology

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

Ben Jelen, Rose-Hulman Institute of Technology

Exploring Opportunities for Innovative Professional Impact: Implementation of a Multidisciplinary Course

Dr. Keilin Jahnke, University of Illinois at Urbana - Champaign

Dr. Joe Bradley, University of Illinois at Urbana - Champaign

M426 - ELOS Technical Session 2 - Beliefs, Motivation, and Pedagogy

1:30 P.M. - 3:00 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Ahmet Sabuncu, Worcester Polytechnic Institute

Student Epistemic Beliefs in Engineering Laboratories

Dr. Michael Robinson, Saint Vincent College

Mr. Brian E. Faulkner, Milwaukee School of Engineering

Integrating Engineering Design in Laboratory Sessions for Second-Year Mechanical Engineering Students

Dr. Deeksha Seth, Villanova University

Dr. Robert P. Loweth, Purdue University

Prof. James C. O'Brien, Villanova University

Transforming Pedagogical Assessment: AI and Computer Vision-Enhanced Classroom Observations for Experiment-Centric Learning Environments

Ms. Blessing Isoyiza Adeika, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Student Perception of Learning Through Laboratory

Dr. Maria Javaid, Indiana State University

Maira Javaid, Indiana State University

Work in Progress: Aligning an Engineering Hands-On Learning Program to College Strategy: Reducing Implementation Barriers to Support Faculty, Students, and Their Success

Ms. Rachel Sharpe, University of Colorado Boulder

Dr. Heidi G. Loshbaugh, University of Colorado Boulder

Mr. Kai Amey, University of Colorado Boulder

Karen C. Crouch, University of Colorado Boulder

Ms. Janet Yowell, University of Colorado Boulder

Mr. Nick Stites, University of Colorado Boulder

M427 - First-Year Programs Division Technical Session 3: Teamwork

1:30 P.M. - 3:00 P.M., F151, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Yanjun Yan, Western Carolina University; Benito Mendoza, New York City College of Technology

This is a full paper session on student teams and teamwork.

Improving Student Perceptions of Teamwork by Scaffolding the Team Project in a First-Year Engineering Course

Dr. Angela Thompson, University of Louisville
Dr. Campbell R. Bego, University of Louisville
Dr. Nicholas Hawkins, University of Louisville
Liliana Martinez, University of Louisville

Exploring Effective Team Formation Strategies for First-Year Engineering Projects

Dr. Rui Li, New York University
Dr. Jack Bringardner, Colorado School of Mines
Ms. Victoria Bill, Colorado School of Mines

Multiple Perspectives on Assessing Student Team Dynamics Using CATME in a First-year Engineering Course

Mr. Rui Li, New York University

Analyzing Patterns of Pre-Semester Concerns in First-Year Engineering Students

Mr. Jeong Hin Chin, University of Michigan
Dr. Robin Fowler, University of Michigan
Christopher Brooks, University of Michigan

Hands-On Activity for First-Year Engineering Students

Dr. Charles E. Baukal Jr. P.E., Oklahoma Baptist University

M427B - First-Year Programs Division Technical Session 4: Design Thinking & Entrepreneurship

1:30 P.M. - 3:00 P.M., F149, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Abigail Clark, Ohio Northern University; Jessica Kuczenski, Santa Clara University

This is a full paper session on teaching design thinking, entrepreneurship, and related concepts.

Concept Mapping the Entrepreneurial Mindset in a First-Year Engineering Design Course: How Students' Perceptions Shift

Dr. Krista M. Kecskemety, The Ohio State University
Laine Rumreich, The Ohio State University
Ethan Cartwright, The Ohio State University
Peyton OReilly, The Ohio State University
Sydney Cooper, The Ohio State University
Heather Schwab, The Ohio State University

Early Design Sprint Impact on Engineering Identity and Entrepreneurial Mindset in the First Year

Dr. Kathleen Bieryla, University of Portland
Dr. Shaghayegh Abbasi, University of Portland
Ms. Jordyn Wolfand, University of Portland

Ill-Structured Design Challenges in First-Year Courses

Madalyn Wilson-Fetrow, University of New Mexico
Prof. Anjali Mulchandani, University of New Mexico
Dr. Vanessa Svihla, University of Texas at Austin
Mr. Ruben D. Lopez-Parra, Purdue University
Sydney Donohue Jobe, University of New Mexico
Paris Eisenman, University of New Mexico
Ethan Kapp, University of New Mexico

Introducing the Engineering Design Process to First-Year Students with a Project Focused on Offshore Wind Energy

Prof. Gordon Stewart, Roger Williams University
Dr. Maija A. Benitz, Roger Williams University
Dr. Lillian Clark Jeznach, Roger Williams University
Dr. Charles R. Thomas, Roger Williams University

Utilizing Informed Design Pedagogy and Strategies in Creating an Introduction to Engineering Design Module

Dr. David Crismond, City University of New York, City College

M428 - Graduate Studies Division (GSD) Technical Session 2: Graduate Student Pipeline and Workforce Development

1:30 P.M. - 3:00 P.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

The GRE in Admissions: Examining the Evidence and Arguments

Dr. Edward F. Gehringer, North Carolina State University

Preferences of Returners and Direct Pathway Students for Online vs. In-Person Master's Program

Dr. Elizabeth Gross, Sam Houston State University

Dr. Diane L. Peters, Kettering University

Pathways to Entrepreneurship (PAtENT): Addressing the National Academies Recommendations

Dr. David K. Pugalee, University of North Carolina at Charlotte

Praveen Ramaprabhu

Dr. Mesbah Uddin, University of North Carolina at Charlotte

Dr. H. P. Cherukuri, University of North Carolina at Charlotte

Prof. Terry Xu, University of North Carolina at Charlotte

Audrey Rorrer

A Systematized Literature Review on Workforce Development Programs for Engineering Graduate Students

Ms. Isabella Victoria, University of Florida

Ms. Laura Melissa Cruz Castro, University of Florida

Idalis Villanueva Alarcón, University of Florida

M429A - Industrial Engineering Division (IND) Technical Session 1

1:30 P.M. - 3:00 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderators: Pelumi Abiodun, Morgan State University; Israa Azzam, Purdue University at West Lafayette (COE)

Project-based learning and sustainability initiatives for enhancing learning in engineering education.

A Utility-based Optimization Model for Allocating Student Teams to Community Projects

Khalid Bello, University of Louisville

Dr. Faisal Aqlan, University of Louisville

Danielle Wood, University of Notre Dame

Training Teachers to Employ Design and Analysis of Computer Experiments for Research on Sustainable Building Design

Mrs. Laura Thomason, Mansfield ISD/The University of Texas at Arlington

Prof. Victoria C. P. Chen, The University of Texas at Arlington

Dr. Erick Jones, The University of Texas at Arlington

Prof. Jay Michael Rosenberger, The University of Texas at Arlington

Jaivardhan Sood, The University of Texas at Arlington

Vishnu Sharma Kaipu Prabhakar Sharma, The University of Texas at Arlington

Soulmaz Rahman Mohammadpour, The University of Texas at Arlington

Rahsirearl Dominick Smalls, Everman ISD/The University of Texas at Arlington

Mrs. Jocelyn Sigler M.Ed., The University of Texas at Arlington

James Hovey

Incorporating an Entrepreneurial Mindset, Bio-Inspired Design, and STEAM Approach to Enhance Learning in a Computer Aided Design and Modeling Class

Dr. Thomas Aming'a Omwando, Simpson University

Bhavana Kotla, Purdue Polytechnic Graduate Programs

Dr. Adel Alhalawani, Rose-Hulman Institute of Technology

Dr. Lisa Bosman, Purdue University at West Lafayette (PPI)

Dr. Ashutosh Khandha, University of Delaware

Methodology to implement project-based learning (PBL) within the context of Operations Management.

Dr. Mahesh Kumar Pallikonda, Austin Peay State University

Dr. Hossain Ahmed, Austin Peay State University

Dr. Md. Ali Haider, Austin Peay State University

Prof. Ravi C. Manimaran, Austin Peay State University

Reimagining Industrial Engineering: Embedding Sustainability and Societal Impact in Course Design

Dr. Corey Kiassat, PE, Quinnipiac University

M430 - Computing and Information Technology Division (CIT) Technical Session 2

1:30 P.M. - 3:00 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Mudasser Wyne, National University; Barry Lunt, Brigham Young University

Development of WPA3-focused, Hands-on Lab Exercises at the Undergraduate Level

Dr. Emil H. Salib, James Madison University

Educational Expertise: Faculty Insights on Preparing Computing Students to Navigate Technical Interviews

Stephanie Jill Lunn, Florida International University

Edward Dillon, Morgan State University

Zubayer Ahmed Sadid, Florida International University

Enhancing High-Level Language Concept Comprehension through a Notional Machine Approach of Assembly Language Education

Dr. Sagnik Nath, University of California, Santa Cruz

From Classroom to Career with Practical Network Training

Mr. Erwin Karincic, Virginia Commonwealth University

Lauren Linkous, Virginia Commonwealth University

Dr. Erdem Topsakal, Virginia Commonwealth University

Gauging Scholarly Engagement: An Investigation into Topic Popularity within the ASEE CIT Division

Dr. Barry M. Lunt, Brigham Young University

Dr. Mudasser Fraz Wyne, National University

David A. Wood, Brigham Young University

M433 - DISTINGUISHED LECTURE: Building Pathways and Breaking Down Barriers in Culturally Responsive and Community-Centered Engineering Education

1:30 P.M. - 3:00 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Speaker: Prof. Mariam Manuel, University of Houston - COE

The intersection of the engineering design process and culturally responsive pedagogy presents a promising avenue for a more inclusive approach to engineering education and integration of engineering design in math and science content. This talk delves into the integration of culturally responsive engineering education within K-12 classrooms, aiming to improve student engagement and academic achievement. Through the presentation of research and practical examples, insights into teachers' preferences and challenges when implementing a culturally responsive engineering design process will be provided.

Furthermore, in the realm of academia, the significance of forging and nurturing meaningful partnerships with community members cannot be overstated. This talk explores the pivotal role of authentic partnerships between higher education institutions and local communities in advancing culturally responsive education. These partnerships prioritize lifting the voices of those with lived experiences and tacit knowledge, recognizing them as the true experts on what is needed for their schools and communities. By collaborating with the community, rather than working on the community, these partnerships ensure that educational practices are relevant, respectful, and effective.

Ultimately, this presentation provides valuable recommendations for STEM education researchers and practitioners seeking to integrate culturally responsive pedagogy into their instruction. It also addresses forming sustainable, authentic community partnerships guided by cultural humility and aiming to tackle systemic barriers in STEM education.

M434 - Transgression, Conflict, and Altruism

1:30 P.M. - 3:00 P.M., B117, OREGON CONVENTION CENTER

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

Moderator: Desen Özkan, University of Connecticut

Liberal education/engineering; Society Division (LEES) Paper Session

Engineering Education in Times of War, Upheaval, and Revolution

Prof. Amy E. Slaton, Drexel University

Prof. Sepehr Vakil, Northwestern University

Engineering as Conflict: A Framing for Liberal Engineering Education

Prof. Jenna Tonn, Boston College

Dr. Avneet Hira, Boston College

Pathways from Engineering Programs to Labor Unions

Dr. Joey Valle, Purdue University

Lazlo Stepback, Purdue University

Polly Parkinson, Utah State University

Fawn Groves, Utah State University

Dr. Angela Minichiello, Utah State University

Dr. Matthew W. Ohland, Purdue University

Teaching to Transgress in a Technology and Society Course

Dr. Stephanie Hladik, University of Manitoba

"Moral Weirdos": Effective Altruism and Empathy in Engineering Education

Dr. Richard A. House, Rose-Hulman Institute of Technology

M434B - Wellness, Readiness, and Thriving

1:30 P.M. - 3:00 P.M., D137, OREGON CONVENTION CENTER

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

Moderator: Rebekah Oulton, California Polytechnic State University, San Luis Obispo

Liberal Education/Engineering & Society Division (LEES) Paper Session

From Mind Full to Mindful: Proposing Mindfulness as a Proactive Strategy for Safeguarding Mental Health in Engineering Education

Vanessa Tran, Utah State University

Dr. Cassandra McCall, Utah State University

Dr. Stephen Secules, Florida International University

Maimuna Begum Kali, Florida International University

Gabriel Van Dyke, Utah State University

An Ecosystem Analysis of Engineering Thriving with Emergent Properties at the Micro, Meso, and Macro Levels

Dr. Julianna Gesun, Embry-Riddle Aeronautical University

Rachel Eve Gail Swan, Embry-Riddle Aeronautical University

Dr. Bryan Watson, Embry-Riddle Aeronautical University

How Does an Engineering Student Take a Break? A Course-Based Exercise for Promoting Mental Wellness

Nicholas Choi, University of California, Irvine

Prof. Natascha Trellinger Buswell, University of California, Irvine

Work in Progress: Leveraging Short, Curated Alumni Videos to Bridge the "Readiness Gap"

Dr. Harly Ramsey, University of Southern California

Stephanie Nicole Bartholomew, University of Southern California

M436 - Materials Division (MATS) Technical Session 2

1:30 P.M. - 3:00 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderators: Lessa Grunenfelder, University of Southern California; Yljing Stehle, Union College

Student-Tool Interactions from a Conceptually Challenging Adaptive Learning Module for Materials Science

Nutnicha Nigon, Oregon State University

Prof. Julie Tucker, Oregon State University

Dr. Milo Koretsky, Tufts University

Bridging the Gap: Industry Integration in MSE Undergraduate Lab Courses Enhancing Student Learning

Dr. Himani Sharma, Georgia Institute of Technology

Incorporating Human-Centered Design to Restructure a Materials Science and Engineering Capstone Course

Dr. Matthew D. Goodman, University of Illinois Urbana-Champaign

Mr. Saadeddine Shehab, University of Illinois Urbana-Champaign

Nicholas Robert Pozza

Dr. Blake Everett Johnson, University of Illinois Urbana-Champaign

Jean-Charles Stinville, University of Illionis Urbana-Champaign

Campus Re-engineered: Tackling Problems Close to Home to Promote Interest in the Field of Materials Science and Engineering for Non-majors

Dr. Sarah A. Goodman, Stevens Institute of Technology

Emily L. Atieh, Stevens Institute of Technology

M438A - NSF Guest Speaker: NSF Funding Opportunities – Part 2

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Siamak Farhad, The University of Akron; Maryam Younessi Sinaki, Cleveland State University

Speaker: Ed Chinchoy

The NSF speaker(s) will delve into NSF's "Technology Translation and Development" programs, highlighting programs such as SBIR, PFI, I-Corps, POSE, and ART, as well as new programs, Proto-OKN, FuSe, Prize Challenges, and pilots. The subsequent discussion will center around "Diverse Innovation Ecosystems" programs, encompassing NSF Engines, EPIIC, ART, and Convergence Accelerator. Participants are encouraged to address their queries to program directors after each presentation. While organized by the Mechanical Engineering Division, this special session is inclusive and welcomes participants from all divisions to explore NSF-funding opportunities across various engineering disciplines.

Free ticketed event

M439 - Understanding the Student Experience in Mechanics Courses

1:30 P.M. - 3:00 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderator: James Lord, Virginia Polytechnic Institute and State University

Dynamics for D's: Avoiding Multiple Failures in a High Risk Course

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

Dr. James M. Widmann, California Polytechnic State University, San Luis Obispo

Exploring Student Perceptions of Learning Experience in Fundamental Mechanics Courses Enhanced by ChatGPT

Dr. Milad Rezvani Rad, University of Southern Indiana

Dr. Julian Ly Davis, University of Southern Indiana

The Effect of a Required Core Mechanics Course on Student Mindset

Dr. Phillip Cornwell, United States Air Force Academy

Get in the Middle of it: A Study of Minoritized Engineering Student Experiences in a Solid Mechanics Course

Ms. Rawan Aqel, University of Wisconsin, Milwaukee

Sarah Anne Blackowski, Virginia Polytechnic Institute and State University

Samia Tarannum, University of Wisconsin, Milwaukee

M440A - NASA Established Program to Stimulate Competitive Research (EPSCoR)

1:30 P.M. - 3:00 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Gholam Shaykhian, Florida Institute of Technology

The EPSCoR provides cooperative agreement opportunities designed to establish partnerships between government, higher education, and industry in an effort to build stronger research and development capabilities in the 28 jurisdictions (states or regions). The program strives to improve a jurisdiction's research infrastructure to a level such that its research and development programs contribute to its economic development. EPSCoR supports competitively funded awards and provides research and technology development opportunities for faculty and research teams. NASA actively seeks to integrate the research conducted by EPSCoR jurisdictions with the scientific and technical priorities pursued by the agency.

M440B - NSF Programs to Advance Research with Broad Impact

1:30 P.M. - 3:00 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Matthew Verleger, National Science Foundation

Speaker: Dr. Matthew A. Verleger Ph.D. (He/His/Him), National Science Foundation

Matthew Verleger

Program Director

Division of Engineering Education & Centers

Directorate for Engineering

National Science Foundation

mverlege@nsf.gov

NSF Programs to Advance Research with Broad Impact

Jesús Soriano Molla

Program Officer, BPE Program

The National Science Foundation (NSF) funds scientists and engineers to perform research that advances discovery and innovation. One of NSF's strategic goals is to "Empower STEM talent to fully participate in science and engineering." This empowerment is achieved by focusing on four general outcomes:

1) Infrastructure: enhancing infrastructure for research and education, particularly at institutions with a demonstrated strength at serving marginalized populations

2) Education: improving PK12, higher education, and public education and educator development in STEM

3) Workforce: developing a more diverse and globally

competitive STEM workforce through support for research opportunities

4) Inclusion: increasing and including the participation of women, people with disabilities, and historically excluded minorities in STEM

This panel will highlight a variety of NSF programs and initiatives that support these goals and provide an opportunity for attendees to ask panelists for guidance in developing their own proposals.

For those interested in: Academia-Industry Connections, Advocacy and Policy, Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College

M440C - Advancing Diversity in Engineering Education: Insights and Perspectives from Underrepresented Communities

1:30 P.M. - 3:00 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Denzel Caldwell, The Ohio State University; Animesh Paul, University of Georgia

This session aims to explore and promote diversity in engineering education by delving into the experiences and challenges faced by underrepresented groups. Through a series of presentations, attendees will gain insights into the unique perspectives of historically black colleges and universities' (HBCUs) dual-degree engineering programs, the impact of mental health and racial battle fatigue on early-career black engineers, and the workplace transition experiences of undergraduate queer engineering students. The session will highlight the importance of fostering inclusive environments and implementing Universal Design for Learning (UDL) strategies to support the success of diverse engineering students. Join us to learn how to cultivate a more equitable and inclusive engineering education landscape.

A Review of the Literature on Students' Experiences in Historically Black Colleges and Universities Dual-Degree Engineering Programs

Makayla Headley, Clemson University

Dr. Trina L. Fletcher, Florida International University

Dr. Lisa Benson, Clemson University

A Systematized Literature Review of Mental Health and Racial Battle Fatigue in Early-Career Black Engineers

Mr. Denzel Caldwell, The Ohio State University

Ms. Dira Melissa Delpech, The Ohio State University

Nia Johnson, The Ohio State University

Dr. Ann D. Christy P.E., The Ohio State University

Accessibility Nuggets, Video Vignettes, and Other Instructor Development Approaches to Foster UDL Adoption and Inclusive Engineering Education

Delu Louis Zhao

Meghana Gopannagari, University of Illinois Urbana-Champaign

Xiuhao Ding, University of Illinois Urbana-Champaign

Alan Tao, University of Illinois Urbana-Champaign

Sujit Varadhan, University of Illinois Urbana-Champaign

Dr. Chrysafis Vogiatzis, University of Illinois Urbana-Champaign

David Dalpiaz, University of Illinois Urbana-Champaign

Prof. Yun Huang

Dr. Jenny Amos, University of Illinois Urbana-Champaign

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Robert Dignan, University of Illinois Urbana-Champaign

Bobbi Lee Battleson Hardy, University of Illinois Urbana-Champaign

Prof. Lawrence Angrave, University of Illinois Urbana-Champaign

Dr. Hongye Liu, University of Illinois Urbana-Champaign

Understanding the Workplace Transition Experiences of Undergraduate Queer Engineering Students

Animesh Paul, University of Georgia

Dr. Racheida S. Lewis, University of Georgia

M441 - Multidisciplinary Engineering Division (MULTI) Technical Session 1

1:30 P.M. - 3:00 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Olanrewaju Olaogun, University of Georgia; Margaret Webb, Virginia Tech Department of Engineering Education

Work-in-Progress: The Unique Impact of an Interdisciplinary Experiential Learning Program on Undergraduate STEM Students' Career Readiness

Dr. Rea Lavi, Massachusetts Institute of Technology

Dr. Aikaterini Bagiati, Massachusetts Institute of Technology

Dr. Gregory L. Long PhD, Massachusetts Institute of Technology

Dr. M. Mehdi Salek

Dr. Amitava 'Babi' Mitra, Massachusetts Institute of Technology

(Multi-disciplinary) Teamwork Makes the (Real) Dream Work: Pragmatic Recommendations from Industry for Engineering Classrooms

Dr. Sreyoshi Bhaduri, Amazon

Kenneth Ohnemus, Amazon

Jessica Blackburn

Mr. Anshul Mittal, Amazon

Yan Dong, Amazon

Savannah LaFerriere

Robert Pulvermacher

Marina Dias, Amazon

Alexander Gil

Shahriar Sadighi

Neerav Kumar, Amazon

Implementing and Using ROS in Undergraduate Robotics Curricula

Prof. Siobhan Rigby Oca, Duke University

Dr. Blake Hament, Elon University

Introducing Spectral Analysis to Undergraduate Engineering Students

Mrs. Najjiya Almallah, Rutgers, The State University of New Jersey

Dr. Mahmoud Al-Quzwini, Stevens Institute of Technology

Model-Based System Engineering Applied to Designing Engineering Labs to Dynamically Adapt to Industry Trends - Case in Point: The Mechatronics, Robotics and Control Lab

Pallavi Singh, University of South Florida

Luis Miguel Quevedo, IEEE Educational Activities

Dr. Grisselle Centeno, Florida Southern College

Dr. Wilfrido A. Moreno P.E., University of South Florida

Ing. Liliana M. Villavicencio, University of South Florida

M445 - Engineering Physics and Physics Business Meeting

1:30 P.M. - 3:00 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Physics and Physics Division (EP2D)

M446 - Software Engineering Division (SWED) Technical Session #2

1:30 P.M. - 3:00 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Stephanos Matsumoto; Kevin Gary, Arizona State University

Serious Games in Computer Engineering Education

Dr. Afsaneh Minaie, Utah Valley University

Dr. Reza Sanati-Mehrizy, Utah Valley University

Breaking the Textbook Paradigm: Increasing Access by Removing Words

Elise Deitrick, Codio

Maura Lyons, Codio

Mr. Joshua Richard Coughlin Stowell Ball, Codio

Characterizing Computing Students' Use of Generative AI

Maura Lyons, Codio

Elise Deitrick, Codio

Mr. Joshua Richard Coughlin Stowell Ball, Codio

An Exploratory Study on Upper-Level Computing Students' Use of Large Language Models as Tools in a Semester-Long Project

Ben Arie Tanay, Purdue Engineering Education

Lexy Chiwete Arinze, Purdue University, West Lafayette

Siddhant Sanjay Joshi, Purdue University, West Lafayette

Dr. Kirsten A. Davis, Purdue University, West Lafayette

Dr. James C. Davis, Purdue University, West Lafayette

M447 - Student Division Technical Session 2: Career Development and Employability

1:30 P.M. - 3:00 P.M., C123, OREGON

CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Joseph Sturgess, Florida International University; Nolgie Oquendo-Colón, University of Michigan

A Review of Career Development Theories and Their Applications in Engineering

Mandana Ashouripashaki, The Ohio State University

Dr. Krista M. Kecskemety, The Ohio State University

Predicting Engineering Students' Employment Aspirations: Roles of Students' Satisfaction and Career Guidance

Fangyuan Chai

Yi Wang

Zhaoping Feng

Jing Jin

Jun Zhu

Optimizing Employment Quality of College Engineering Students: The Crucial Role of School-Based Career Guidance and Readiness

Jun Zhu

Mr. Sun Tiemin, Beijing Foreign Studies University

Jiayao Sun

Fangyuan Chai

Compiling Resilience: A Study on First-Generation Women Pursuing Computing Degrees

Ella Kokinda, Clemson University

Makayla Moster, Clemson University

Dr. D. Matthew Boyer, Clemson University

Identifying the Skills and Student Activities that Influence Career Pathways for Black vs. non- Black Engineering Graduates

D'andre Jermaine Wilson-Ihejirika P.Eng., University of Toronto

M449 - Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE) Technical Session 1

1:30 P.M. - 3:00 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE)

This session focuses on the ethical and effective uses of AI in education.

Evaluation of the Utilization of Generative Artificial Intelligence Tools among First-Year Mechanical Engineering Students

Dr. Steffen Peuker, California Polytechnic State University, San Luis Obispo

Empowering Students in Emerging Technology: A Framework for Developing Hands-on Competency in Generative AI with Ethical Considerations

Dr. Chun Kit Chui, University of Hong Kong

Dr. Lei Yang, The University of Hong Kong

Prof. Ben Kao, University of Hong Kong

AI, Truth, Prejudice, Technological Literacy, Education and TELPhE

Prof. John Heywood, Trinity College Dublin

Cultivating Tomorrow's Innovators: Navigating the Landscape of High School AI Literacy

Ms. Erin Bosarge, University of South Alabama

Connecting Campus and Community: Applying Virtual Reality (VR) Technologies to Facilitate Energy Justice and Emerging Technology Literacy

Prof. Aditi Verma, University of Michigan

Kellie Grasman, University of Michigan

Dr. Katie Snyder, University of Michigan

Sara Elizabeth Eskandari

M450 - Transfer Issues Between 2-Year Colleges and 4-Year Engineering and Engineering Technology Programs 2

1:30 P.M. - 3:00 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Md. Ali Haider, Austin Peay State University

Transfer issues between two-year colleges and four-year engineering and engineering-technology programs

A Quantitative Exploration of Geographic and Demographic Variance Transfer-Student Capital Assets and Support for Pre-Transfer Engineering Students

Dr. Kristin Kelly Frady, Clemson University

Randi Sims, Clemson University

Dr. Christy Jenkins Brown, Clemson University

Community College Support for Engineering Students: Reflective Journaling Analysis

Dr. Cory Brozina, Youngstown State University

Incorporating an Academic Coaching Role to Regional Recruiters Employed in a Co-enrollment Program in Engineering

Mr. Ed Bassett, Texas A&M University

Dr. Cindy Lawley, Texas A&M University

Eliminating Sources of Information Asymmetry in Transfer Articulation

Prof. Gregory L. Heileman, The University of Arizona

Prof. Chaouki T. Abdallah, Georgia Institute of Technology

Dr. Andrew Karl Koch, John N. Gardner Institute for Excellence in Undergraduate Education

M451 - WIED Business Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Women in Engineering Division (WIED)

Moderators: Brian Kirkmeyer, Miami University; Kristi Shryock, Texas A&M University

The WIED Business Meeting will introduce new officers, share program status, and receive member feedback.

M452 - Empowering Students and Strengthening Community Relationships

1:30 P.M. - 3:00 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Adithya Jayakumar, The Ohio State University

Addressing Societal Challenges through Graduate-level Community-engaged Design Projects (Traditional Research Paper)

Dr. Samuel A. Acuña, George Mason University

Prof. Nathalia Peixoto, George Mason University

Holly Matto, George Mason University

Prof. Siddhartha Sikdar, George Mason University

Prof. Padmanabhan Seshaiyer

Community Voices in the Spotlight: Students' Engagement in the Literacies of Human-Centered Engineering Design

Gianina Morales, University of Pittsburgh; Universidad de Valparaíso, Chile

Dr. Emily C. Rainey, University of Pittsburgh

Promoting Empathy in Engineering Undergraduates: An Assessment of the Efficacy of an Interdisciplinary Service-Learning Design Course

Mrs. Heidi Lynn Morano, Lawrence Technological University

Matthew L. Cole, Lawrence Technological University

WIP Elevating the Unsung Heroes: Assessing Graduate Teaching Assistants' Experiences in Service-Learning Programs

Ms. Danielle N. Wagner, Purdue University

Sukrati Gautam, Purdue University

Peyman Yousefi, Merck Group

Miss Nuela Chidubem Enebechi, Purdue University

Mr. Andrew Pierce, Purdue University

Dr. William "Bill" C. Oakes, Purdue University

Work in Progress: Quality Indicators for Community-Engaged Education, Scholarship, and Research

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

Prof. Lupita D. Montoya, University of Colorado, Boulder

Andrea Ferro, Clarkson University

M457 - Beyond Grading—Changing our Mindset about "Assessment" to Enhance Student-centeredness

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Juan David Ortega Álvarez, Virginia Polytechnic Institute and State University

Speakers: Dr. Juan David Ortega Álvarez, Virginia Polytechnic Institute and State University; Dr. Ruth A. Streveler, Purdue University at West Lafayette (COE); Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York; Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University; Dr. Karl A. Smith, University of Minnesota - Twin Cities

Purpose

An overlooked piece of faculty development is helping faculty come to terms with assessment--particularly with the tension between the desire to use assessment to provide feedback on learning, and the cultural and institutional pressures of what "assessment" should look like. The purpose of this special session is to prompt participants to reflect on

their assessment practices as examined through a lens of the student-centeredness aspect of effective and inclusive instruction. We argue that feedback and formative goals should be at the core and NOT grading.

Learning Objectives

Participants in this session will:

1. List their current assessment practices along with their summative and formative aim;

2. Identify the institutional, cultural, or contextual circumstances that promote or hinder the alignment of their practices with student learning; and

3. Create a plan to increase the students-centeredness of one important piece of assessment in their practice.

Learning Activities

1. Presentation of assessment as the often-forgotten piece of instructional design (CAP) and a pivotal concept of SoTL. Refresher of the Assessment Triangle. Impact of the institutional and cultural forces working on assessment practices.

2. In small groups, participants reflect on their own assessment practices. Below are some prompts to help guide this reflection:

a. What is your definition of assessment?

b. What is your experience with assessment?

c. How do you create assessments?

d. How can you improve the authenticity of your assessments?

e. Are there institutional, cultural or contextual forces that push assessments away from student centeredness?

3. Report out the major takeaways and recurring themes from the reflection.

4. Work on an individual plan to improve the student-centeredness of at least one of their assessment practices.

5. Wrap-up of lessons learned and next steps

6. Present ongoing project on faculty mental models of assessment

Timeline of the session

1. Presentation, 15 mins - short talk on assessment in instructional design, assessment and SoTL, and the Assessment Triangle

2. Small groups discussion, 25 mins - facilitators will circulate to ensure groups are looking at the different prompts

3. Report out, 20 mins - facilitators will record recurring themes and insights to weave them into the wrap-up

4. Individual plan, 10 mins - facilitators will circulate to answer individual questions, although participants will be encouraged to interact with each other as they write their plans.

5. Lessons learned, 10 mins - lessons learned during the session and next steps

6. Mental models of assessment, 10 mins - Discuss ongoing research of faculty mental models of assessment

M457B - Faculty Development Division (FDD) Technical Session 2

1:30 P.M. - 3:00 P.M., F150, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Michelle Soledad, Virginia Polytechnic Institute and State University; Xiaping Li, University of Michigan

Faculty Development Division Technical Session 2

A Predictive Study on the Adoption of Active Learning at HBCUs among Engineering Faculty

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Apoyando y Modificando el Currículo: Supporting our Next Generation Latinx STEM Students

Mayrismir Cordero

Anna Tanguma-Gallegos PhD(c), Arizona State University

Caroline Vaningen-Dunn, Arizona State University

Faculty Development Symposium: Building a Community for Early-Career Engineering Hispanic Faculty's Success and Advancement

Dr. Dayna Lee Martínez, Society of Hispanic Professional Engineers, Inc.

Dr. Kimberly D. Douglas P.E., Society of Hispanic Professional Engineers, Inc.

Andrea D. Beattie, Society of Hispanic Professional Engineers, Inc.

Ms. Esther Gonzalez

Faculty and Administrators' Servingness in Engineering Education at Hispanic Serving Institutions: A Systematic

Review

Dr. Hyun Kyoung Ro, University of North Texas

Shirley Anderson, University of North Texas

Unintended Positive Consequences of an NSF-funded System-wide Collaboration

Dr. Feruza Amirkulova, San Jose State University

Dr. Lalita G. Oka, California State University, Fresno

Dr. Arezoo Sadrinezhad, California State University, Fresno

Dr. Sue Rosser, San Francisco State University

Dr. Kimberly Stillmaker PE, California State University, Fresno

Dr. Maryam Nazari, California State University, Los Angeles

Jessica C. Bennett

Prof. Younghee Park, San Jose State University

Dr. Lizabeth L. Thompson P.E., California Polytechnic State University, San Luis Obispo

M459 - Launching a Community of Neurodivergent People in Engineering Education

1:30 P.M. - 3:00 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

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

Moderators: Marissa Tsugawa, Utah State University - Engineering Education; Nadia Kellam, Arizona State University

Speakers: Mr. Hector Enrique Rodríguez-Simmonds, Purdue Engineering Education; Theo Sorg, Purdue University; Mx. Sage Maul, Purdue University at West Lafayette (PPI); Mr. Taylor V. Williams, Harding University; Dr. Nadia N. Kellam, Arizona State University; Dr. Alice L. Pawley, Purdue University at West Lafayette (COE); Dr. Marissa A. Tsugawa, Utah State University - Engineering Education

Engineering education is often neuronormative; that is, there is often an implicit assumption in engineering education that faculty and students are neurotypical and think in relatively similar ways. Many of the facilitators of this workshop thought we were alone in engineering education when we realized we were neurodivergent (e.g., ADHD, bipolar, PTSD, dyslexia, autism, and others). We found community with each other as we discussed our experiences of neurodivergence in engineering education.

At last year's ASEE (2022), we held a storytelling panel of neurodivergent graduate students and faculty. In that session, we had a groundswell of interest in this topic. We suspect there could be a critical mass of people to form a community. In this workshop, we want to continue the conversation and build community by and for neurodivergent academics.

The objective of the workshop is to facilitate the development of a neurodivergent engineering education community by identifying what potential members might need or want out of such a community and creating space for neurodivergent individuals to connect over creative interests and hands-on activities.

Activity:

After introductions to the session by facilitators, participants can freely move between sub-activities or "stations" at each table. Stations allow participants to build connections around shared interests and continue conversations around community-building. One type of station will focus on conversations around neurodivergence and community. These stations will include a long stretch of butcher paper for participants to respond to prompts in writing and allow the facilitators to note insights from the discussion.

Prompts for these stations may include:

- How do you define neurodivergence?
- What do you need or want in a community for neurodivergent folks in engineering?
- What would a future community be like that you would want to be a part of?
- What guidelines and expectations would you have for community members?

The other type of stations will be centered on particular creative and hands-on interests. Some facilitators will lead a table based on their interests (e.g., knitting, coloring, collaging, ceramics), while others will move between stations to encourage participant engagement. In addition, some tables will be left intentionally open so that participants can start new stations to share other interests.

We will notify participants at twenty-minute intervals, inviting them to move to another table if they do not want to continue at their current station. Participants do not need to wait until this prompt to move between stations (following the rule of "two feet"); reminders exist to aid participants' perception of time passage.

At the end of the session, facilitators will reconvene the full group for participants to share emerging insights from the workshop.

Timeline:

• 5 minutes: Get situated

• 10 minutes: Introduction and goals of the workshop

• 60 minutes: Small group stations focused on creative and hands-on interests (will ring at 20-minute intervals to encourage people to move to different stations)

• 15 minutes: Shareout; each table will share its emerging insights with the rest of the room

M459B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 3

1:30 P.M. - 3:00 P.M., B118, OREGON CONVENTION CENTER

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

Bridging the Equity Gap: Environmental Justice Education in K–16 for Engineering Teaching and Learning

Dr. Monica Lynn Miles, University at Buffalo, The State University of New York

Alexandra Schindel, University at Buffalo, The State University of New York

Kate Haq, University at Buffalo, The State University of New York

Centering Disabled Women in STEM Professions: A Critique of Identity Isolation in STEM Data

Sydni Alexa Cobb, University of Texas at Austin

Ariel Chasen, University of Texas at Austin

Chandel Burgess, University of Texas at Austin

Characterizing First-Year Engineering Students' Priorities and Language Use in Socio-technical Written Reflections

Dr. Kaylla Cantilina, Tufts University

Dr. Chelsea Joy Andrews, Tufts University

Fatima Rahman, Tufts Center for Engineering Education and Outreach

Co-Creating Inclusion: Designing a Living Inclusive Teaching Toolkit

Mina Zavary, University of Washington

Sourojit Ghosh, University of Washington

M469B - Greet the Stars! ASEE New Members & First Timers Orientation

1:30 P.M. - 3:00 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

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

M469C - CIEC Board and Planning Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Headquarters

CIEC Board and Planning Meeting

M474 - Engineering Deans Council (EDC) Executive Board Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Deans Council (EDC)

Engineering Deans Council (EDC) Executive Board Meeting

M481 - Trailblazers of Transformation: A Distinguished Panel of Change Agents Shaping the Future of Diversity, Equity, and Inclusion in Engineering Education

1:30 P.M. - 3:00 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderator: Christina Alston, University of Colorado Boulder

Speakers: Dr. Brooke Charae Coley, Arizona State University, Polytechnic Campus; Dr. Sarah Rodriguez, Virginia Polytechnic Institute and State University; Dr. Alicia "Nicki" Washington, Duke University

The Commission on Diversity, Equity, and Inclusion invited three panelists to explore key issues, share best practices, and engage in a thought-provoking exchange of ideas concerning diversity, equity, and inclusion. The panelists will share their perspectives on being change agents for diversity, equity, and inclusion efforts in engineering and computing education.

M493 - Developing a K-16 Design Community of Practice: DEED/ PCEE Panel (CP12)

1:30 P.M. - 3:00 P.M., B119, OREGON CONVENTION CENTER

Sponsors: ASEE Commission on P12 Engineering Education; Design in Engineering Education Division (DEED); Pre-College Engineering Education Division (PCEE)

Moderators: Charlotte De Vries, Pennsylvania State University, Behrend College; Andrew Olewnik, University at Buffalo, The State University of New York

Speakers: Dr. Senay Purzer, Purdue University at West Lafayette (COE); Dr. Shanna R. Daly, University of Michigan; Dr. Stacy S. Klein-Gardner, Vanderbilt University

The purpose of this panel is to discuss the role that university faculty and students can play in supporting Pre K-12 pre-college engineering education, specifically when it comes to design projects. The speakers in the panel will be college and university faculty DEED & Pre-College Engineering Education Division (PCEE) members who are experienced with either teaching Engineering Design courses at the university level or using design projects with pre-college students.

This panel will serve to report on a workshop taking place the Saturday before the National ASEE conference at the ASEE Commission for P12 Engineering Education (CP12) Teacher Conference event. The workshop will invoke the Design Honeycomb as a basis for having teachers evaluate and expand their design-based projects. The objective or outcome for the K-12 teachers is to give them some alternative forms or types of design-related inquiry that they might incorporate in their classroom. During the workshop, the presenters seek to understand the barriers that K-12 teachers face when implementing design processes in the classroom. For the first year, the workshop focus will be on projects targeted at students in sixth through eighth grades.

The panel session will be co-hosted by DEED, the Pre-College Engineering Education Division (PCEE), and CP12. The panelists will present what they learned from the teachers in the workshop and lead a discussion with attendees. The objective with this is to start building connections among DEED and PCEE constituents, and other attending ASEE members, toward building a more connected design community of practice.

M494A - SPONSOR TECH SESSION: Transform Your Teaching With Case Studies - Presented by EngineeringUnleashed

1:30 P.M. - 3:00 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Discover an innovative workshop that rethinks case studies in engineering education with a focus on opportunities and impacts. Dive into the exhilarating world of indoor skydiving with our exclusive iFLY Case Studies, just one of the many tools designed to enhance technical skills and cultivate an entrepreneurial mindset. Traditionally used in business and law, case studies now bring story-based learning to engineering, moving beyond failure analysis to inspire critical thinking and relevance. As a participant in this workshop, you will explore the new iFLY Case Studies (iFLY is an indoor skydiving wind tunnel), along with other case studies. Delve into the case development process for technical courses and unlock a new dimension of learning.

Workshop Facilitators:

•Ken Bloemer (University of Dayton)

•Sidaard Gunasekaran (University of Dayton)

•Doug Melton (The Kern Family Foundation)

M494B - SPONSOR TECH SESSION: Preparation for an On-Site Visit - Volunteers - Presented by ABET

1:30 P.M. - 3:00 P.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical 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. 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 visits.

Speakers:

Leonard Bohmann, Ph.D., PE, Associate Dean for Academic Affairs, Michigan Technological University

Michael Johnson, Ph.D., Interim Associate Provost for Faculty Success, Interim Associate Vice President for Faculty Affairs, Texas A&M University-College Station

M503 - Biological/Agricultural/ Ecological Engineering Programs: Looking to the Past While Envisioning the Future

3:15 P.M. - 4:45 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Moderator: Tim Foutz, University of Georgia

Speakers: Prof. Fadi Fathallah, University of California, Davis; Mark C. Stone, University of Nebraska - Lincoln; Thomas Dalton Stephenson Jr, North Carolina State University at Raleigh

Fadi Fathallah (University of California, Davis), Mark Stone (University of Nebraska, Lincoln), and Tommy Stephenson (North Carolina State University) will discuss their departments' historical and contemporary highlights and future visions. This session provides an opportunity to recognize the past and share plans to educate and support the next generation of engineers who engage in biological, agricultural, and ecological systems. Attendees can share their insights and experiences, ideas, resources, and what has or has not worked in the past. This session will include the presentation of the BAE Division's Early Career Achievement in Education Award.

M504 - Biomedical Engineering Division (BED) Technical Session 1

3:15 P.M. - 4:45 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Naji Husseini, North Carolina State University at Raleigh; Shivaun Archer, Cornell University

Student Engagement and Career Development in BME

IDEAL Creative Biomechanics Project and the Impact on Students' Engagement (Phase III)

Dr. Michele J. Grimm, State University of New York at Albany

Dr. Roza Vaez Ghaemi, University of British Columbia, Vancouver

Dr. Elizabeth Mays, University of Michigan

A Revised Clinical Immersion Program to Support Longitudinal Development

Dr. Anthony E. Felder, The University of Illinois at Chicago

Michael Gordon Browne, The University of Illinois at Chicago

Dr. Miiri Kotche, The University of Illinois at Chicago

Assessment and Impact of a Clinical Observations and Needs Finding Course on Biomedical Engineering Education Outcomes

Ms. Jacquelynn Ann Horsey, University of Arkansas

Thomas Hudnall McGehee, University of Arkansas

Dr. Mostafa Elsaadany, University of Arkansas

Dr. Timothy J. Muldoon, University of Arkansas

Take this Job and Love It: Identity-Conscious Self-Reflection as a Tool to Support Individualized Career Exploration for Graduating Biomedical Engineering Students

Dr. Uri Feldman, Wentworth Institute of Technology

Dr. George D. Ricco, Miami University

Catlin Wells

Longitudinal Analysis of Strategies for Improving Biomedical Engineering Student Knowledge of Career Paths and Desired Skillsets

Dr. Rebecca Anne Scott, University of Oklahoma

Alex Nelson Frickenstein, University of Oklahoma

Dr. Stefan Wilhelm, University of Oklahoma

M505 - Chemical Engineering Division (ChED) Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Chemical Engineering Division (ChED)

M506 - Civil Engineering Division (CIVIL) Planning Meeting

3:15 P.M. - 4:45 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

M508B - CoED Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Computers in Education Division (COED)

Moderators: Steven Barrett, University of Wyoming; Mahnas Mohammadi-Aragh, Mississippi State University

M510 - CIEC Executive Board Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Continuing, Professional, and Online Education Division (CPOED)

Meeting for Executive Board Members of CIEC

M5101B - Interdivisional Town Hall Meeting

3:15 P.M. - 4:45 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: Professional Interest Council (PIC)

Interdivisional Town Hall Meeting: Fostering Comprehensive and Holistic Development in Engineering Students

The annual Interdivisional Town Hall provides a forum for members from various divisions and attendees to discuss topics relevant to the entire ASEE membership. With multiple divisions, our organization values diverse perspectives, fostering cross-divisional partnerships, and creating resources to address challenges at national and international levels. This year's discussion will center on enhancing the student experience. As faculty, instructors, and staff, we aim to make a difference by exploring and creating meaningful next steps for key aspects of students' journey in engineering education and professional development.

The first half will allow for intimate, roundtable conversations based on provided discussion prompts, listed below.

The second half of the Town Hall will introduce KEEN, the Kern Entrepreneurial Engineering Network, and a framework for faculty to engage students via curiosity, connections, and creating value in the classroom. Participants will collaboratively engage with EngineeringUnleashed.com resources to realize activities for their engineering courses.

Both parts of the Town Hall will lead directly to roundtable discussions to share recommendations and generate ideas. Individuals will be asked to share and apply their skills, knowledge, and expertise to these conversations in crafting shareable deliverables for guiding future effort.

Topic 1 – Equity Issues in STEM Preparation

Engineering students often encounter equity challenges in

math and STEM preparation, especially when navigating the demanding engineering curriculum towards graduation. Some students may feel discouraged or be discouraged from continuing in the field. It is essential for all students to have access to quality education and resources, regardless of their backgrounds. Our goal is to cultivate a more inclusive and diverse engineering field that generates innovative solutions benefiting society. Additionally, we seek to create a talent pool that might not currently be adequately represented.

Topic 2 – Working Together Effectively

Teamwork and collaboration are essential skills in all career sectors. Engineering students often face challenges with team dynamics during collaborative activities, which can impact project outcomes and interpersonal relationships in and beyond school and the workplace. By addressing these challenges early, students can develop a positive team environment, improve communication, and enhance collaboration skills crucial for their future engineering careers. What are some best practices for equitable team formation, team mentorship, and teaching collaboration? How can collaboration and teamwork be effectively assessed? What innovative ideas do you have to promote collaboration as a vital skill, including methods for discussion, debriefing, and practice?

Topic 3 – Using Artificial Intelligence Appropriately

The responsible use of AI can greatly benefit engineering faculty, staff, and students by enhancing their learning, deepening their understanding of studied concepts, and preparing them for future careers. It is necessary for students to understand the limitations and ethical considerations of AI, as well as how it can complement their skills. As educators, it is essential for us to understand and help develop guidelines and recommendations developed by our universities regarding the responsible use of AI in teaching and learning.

Topic 4 – Global Citizenship in Engineering Education

Global education and citizenship for engineering students involve understanding diverse perspectives and addressing social justice issues in engineering practice. Students should have opportunities to develop global competencies such as communication, cooperation, social responsibility, identity, and knowledge by practicing both professional skills and applying technical solutions with a global perspective, sustainability and consideration for cultural and social expectations.

M5101C - Instructional Showcase

3:15 P.M. - 4:45 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Professional Interest Council (PIC)

Moderator: Elliot Douglas, University of Florida

Come see the latest innovations in teaching. Engineering education instructors will share laboratory demonstrations, classroom demonstrations, and approaches to teaching. The session is set up with individual tables for each instructor so that you can get an in-depth explanation of any of the innovations that interest you.

Participants include:

1. 43275A Collaborative Virtual Air Quality Learning Experience with Kakenya's Dream (Resource Exchange, Diversity), Jessica Moriah Vaden

2. Activities for Exploring Beauty and Elegance in Engineering in a First-Year Seminar, Lee Rynearson

3. Assessing Teamwork and Design Habits in a First-Year Engineering Design Course, Catherine Hamel

4. 41214 Bend But Do Break: An Inquiry Experience Into Material Properties (Resource Exchange), Rachelle Pedersen

5. 42167 Bridge Construction Curriculum for K-12 students (Resource Exchange), Sarah Lynn Orton

6. 42464 BYOE: Determination of Diffusivity via Time-lapse imaging with a 3-D printed spectrometer and a Raspberry PI, Lisa Weeks

7. 43558 BYOE: McKibben Creature - A Low-Cost Robotic Simulation of A Biological Environment, Joseph Richard Midiri

8. 44048 BYOE: SeaKatz 2.0 – Vision and Pneumatic Claw for Underwater Robot with VR Simulation, Iftekhar Ibne Basith

9. 43562 BYOE: Soft Robotic Fish ProjectCassandra, Sue Ellen Jamison

10. 43548 BYOE: Wacky-Waving-Non-Inflatable-Arm-Flailing-Tube-Man for Teaching Soft Robotics, Cassandra Sue Ellen Jamison

11. 43089 Corsi-Rosenthal Box Learning Module: How Can We Make Clean Air Accessible for Schools? (Resource Exchange), Kristina Wagstrom

12. Dangerous Toys Project, Dan Harbowy

13. 43589 Empathic Design in Cross-cultural STEM Education: Playground Project (Resource exchange), Soo Won Shim

14. 41522 Engineering Lessons for Family Engagement (Resource Exchange), Natasha Wilkerson

15. 42709 Green STEMS Activities for STEM and Sustainability (Resource Exchange), Ryan Brown

16. Improved Team Skill Development through a Semester-long Teamwork Report, Melissa Simonik

17. Incorporating Bio-Inspiration into First Year Design, Danielle Grimes

18. 43246 Integrating Engineering Design and Microelectronics in a Range of Pre-College Courses (Resource Exchange), Tamara J Moore

19. 44407 Lighting a Pathway to Energy Transitions: Collecting, Interpreting and Sharing Engineering Designs and Research Data across a School-based Agrivoltaics Citizen Science Network (Pre-College Resource/Curriculum Exchange), Michelle Jordan

20. 41848 Milling Circuit Pathways: Enhancing Students' Competencies and Experiences with Microelectronics (Resource Exchange), Sean Wiseman

21. Passports to Engage Students in Engineering, Stephany Coffman-Wolph

22. Project-Based Service-Learning for First-Year Engineering Students, Fayekah Assanah and Kristina Wagstrom

23. 42945 Resource Exchange: The Basics of Computer Hardware for Middle School Students, Stephany Coffman-Wolph

24. 42929 Rosie's Walk: A Culturally Responsive Computational Thinking PK-1 Challenge (Resource Exchange), Katherine C. Chen

25. Sharing Stories & Building Belonging in a First Year Engineering Course, Dori Harcharik

26. 41573 Smart Wireless Weather Station and Climate Console (Resource Exchange), Jeritt Williams

27. 41215 Snap and Pop: Investigating Energy Transformations With Rubber Popper Toys (Resource Exchange), Rachelle Pedersen

28. Templating Circuit Sub-systems to Improve Outcomes in a First-year Circuit Design Project, Brian Krongold

29. 42131 The Wicked Engineer: Centering Intercultural Competency and Equity (Resource Exchange), Cherish C. Vance

30. Transforming First-Year Engineering Curriculum with Diversity, Equity, Inclusion and Entrepreneurial-Minded Learning, Lisa Murray

31. Using Storybooks and Storytelling to Prompt Discussion and Reflection of Growth Mindset, Kimberlyn Gray

32. 41078 Utilizing the Remind App to Engage Families in Engineering Talk and Design (Resource Exchange), Amber Simpson

Using the Remind App to Engage Families in Engineering Talk and Design (Resource Exchange)

Amber Simpson, Binghamton University

Bend But Do Break: An Inquiry Experience Into Material Properties (Resource Exchange)

Dr. Rachelle M. Pedersen, Texas A&M University

Justin Wilkerson, Texas A&M University

Snap and Pop: Investigating Energy Transformations With Rubber Popper Toys (Resource Exchange)

Dr. Rachelle M. Pedersen, Texas A&M University

Justin Wilkerson, Texas A&M University

Engineering Lessons for Family Engagement (Resource Exchange)

Mrs. Natasha Wilkerson, Texas A&M University

Justin Wilkerson, Texas A&M University

Smart Wireless Weather Station and Climate Console (Resource Exchange)

Julian Andrew Schmitt

Marlene Urbina, Illinois State University

Alexander Michael Perhay

Orla Maire Sheridan

Chance William Tyler, Illinois State University

Jeritt Williams, Illinois State University

Dr. Matthew Aldeman, Illinois State University

Dr. Jin Ho Jo, Illinois State University

Allison Antink-Meyer, Illinois State University

Milling Circuit Pathways: Enhancing Students' Competencies and Experiences with Microelectronics (Resource Exchange)

Sean Wiseman, Purdue University

Tori Constantine, Purdue University

Deana Lucas, Purdue University, West Lafayette

Dr. Greg J. Strimel, Purdue University, West Lafayette

Prof. Tamara J. Moore, Purdue University, West Lafayette

The Wicked Engineer: Centering Intercultural Competency and Equity (Resource Exchange)

Dr. Patrick Sours, The Ohio State University

Cherish C. Vance, The Ohio State University

Bridge Construction Curriculum for K-12 Students (Resource Exchange)

Dr. Sarah Lynn Orton P.E., University of Missouri, Columbia

Green STEMS Activities for STEM and Sustainability (Resource Exchange)

Dr. Ryan Brown, Illinois State University

Allison Antink-Meyer, Illinois State University

Soo Won Shim, Illinois State University

Richard Bex, Illinois State University

Anthony Lorsbach

Rosie's Walk: A Culturally Responsive Computational Thinking PK-1 Challenge (Resource Exchange)

Tiffany Davis

Nea Sann

Dr. Mia Dubosarsky, Worcester Polytechnic Institute

Shakhnoza Kayumova, University of Massachusetts Dartmouth

Dr. Katherine C. Chen, Worcester Polytechnic Institute

Resource Exchange: The Basics of Computer Hardware for Middle School Students

Dr. Stephany Coffman-Wolph, Ohio Northern University

Dr. Ahmed Ammar, Ohio Northern University

Henry Timothy Debord, Ohio Northern University

Corsi-Rosenthal Box Learning Module: How Can We Make Clean Air Accessible for Schools? (Resource Exchange)

Aaron Richardson, University of Connecticut

Todd Campbell, University of Connecticut

Marina A. Creed, UConn Health and UConn School of Medicine

Dr. Kristina M. Wagstrom, University of Connecticut

Integrating Engineering Design and Microelectronics in a Range of Pre-College Courses (Resource Exchange)

Prof. Tamara J. Moore, Purdue University, West Lafayette

Siddika Selcen Guzey, Purdue University, West Lafayette

Dr. Greg J. Strimel, Purdue University, West Lafayette

Dr. Morgan M. Hynes, Purdue University, West Lafayette

Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Imani Adams, Purdue University, West Lafayette

Dr. Molly H. Goldstein, University of Illinois Urbana-Champaign

Rachel E. Gehr, Purdue University, West Lafayette

Emily M. Haluschak, Purdue University, West Lafayette

Ms. Azizi Penn, Purdue Engineering Education

Ms. Breejha Sene Quezada, Purdue Engineering Education

Deana Lucas, Purdue University, West Lafayette

JaKobi Burton, Purdue University, West Lafayette

Dr. Mary K. Pilotte, Purdue University, West Lafayette

Anne DeLion, Purdue Engineering Education

Rena Ann Sterrett, Purdue Engineering Education

Dr. Aman Yadav

A Collaborative Virtual Air Quality Learning Experience with Kakenya's Dream (Resource Exchange, Diversity)

Miss Jessica Moriah Vaden, University of Pittsburgh

Dr. Melissa M. Bilec, University of Pittsburgh

Empathic Design in Cross-cultural STEM Education: Playground Project (Resource exchange)

Soo Won Shim, Illinois State University

Dr. Ryan A. Brown, Illinois State University

Allison Antink-Meyer, Illinois State University

Anthony Lorsbach

Lighting a Pathway to Energy Transitions: Collecting, Interpreting and Sharing Engineering Designs and Research Data Across a School-based Agrivoltaics Citizen Science Network (Pre-College Resource/Curriculum Exchange)

Dr. Michelle Jordan, Arizona State University

Ms. Katie Spreitzer, Arizona State University

Sarah Bendok

M511 - Cooperative and Experiential Education Division (CEED) Technical Session 3

3:15 P.M. - 4:45 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Jenny Strickland, Purdue University at West Lafayette (COE)

Nurturing Student Innovation and Leadership through Student-Initiated Interest Groups

Dr. Match Ko, University of Hong Kong

Prof. Fu Zhang, University of Hong Kong

Dr. Chun Kit Chui, University of Hong Kong

Preparing Students to Thrive in Industry: The Critical Role of a

Learning Coach

Dr. Darcie Christensen, Minnesota State University, Mankato

Alexander Steven Victor Krumm

Arynn J. Lorentz, Iron Range Engineering

Cody Mann, Minnesota State University, Mankato

Kaitlyn Mann

Mr. Andrew Lillesve, Minnesota State University, Mankato

Doing Before Graduating: Experiential Learning with Part-Time Internships and Grants

Mr. Brian Khoa Ngac, George Mason University

Nirup M. Menon, George Mason University

Comparative Analysis of Internship Programs from Employer and Student Perspectives

Dr. Lufan Wang, Florida International University

Does the French Engineering Education Approach to Internships Work in China? Perception of Chinese Students Enrolled in a Sino-French Engineering Program in China

Dr. Ying Lyu, Beihang University

Prof. Chuantao Yin, Beihang University

Prof. Qing Lei, Beihang University

M513 - Design in Engineering Education Division (DEED) - Teamwork in Design Education

3:15 P.M. - 4:45 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Elisabeth Kames, Florida Polytechnic University

An Experiential Team Formation Process that Leverages Student and Instructor Insights

Dr. Brian Roth, Embry-Riddle Aeronautical University, Prescott

Accountability, Ownership, and Satisfaction: An Innovative Approach to Teamwork in Engineering Education

Sydney Kropp, University of Oklahoma

Dr. Doyle Dodd, University of Oklahoma

Assessing Student Perceptions of Peer Review Methods' Efficacy in a Team-Based, Senior Undergraduate Capstone Course Setting

Prof. Sara Lego, Pennsylvania State University

Cara Exten, Pennsylvania State University

Teaming Tribulations: Using a Role Playing Game to Improve Teaming Outcomes

Dr. Charlotte Marr de Vries, Pennsylvania State University

Dr. Qi Dunsworth, Pennsylvania State University

Dr. Doyle Dodd, University of Oklahoma

A Discussion and Analysis of Two Methods of Team Selection in an Interdisciplinary Senior Design Program

Dr. Rachel Horenstein, University of Denver

Daniel D. Auger, University of Denver

M514A - Educational Research and Methods Division (ERM) Technical Session 4

3:15 P.M. - 4:45 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Carmen Lilley, The University of Illinois at Chicago

A Novel Approach to Purposeful Team Formation

Dr. Steffen Peuker, California Polytechnic State University, San Luis Obispo

Prof. Alessandro Hill, California Polytechnic State University, San Luis Obispo

A Longitudinal Investigation of International Graduate Students' First-Year Experiences in U.S. Engineering Programs

Mr. Kyeonghun Jwa, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

Exploring Engineering Graduate Students' Perceptions of Creativity in Academic and Research Environments

Autumn R. Deitrick, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

Exploring the Evolution of Engineering Doctoral Students' Academic and Career Goals in the First Year of Graduate School

Gabriella M. Sallai, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

The Impact of a Graduate Teaching and Leadership Course on Engineering Graduate Teaching Assistants' Learning of Pedagogy

Robin Jephthah Rajarathinam, University of Illinois at Urbana - Champaign

Joshua E. Katz, University of Illinois at Urbana - Champaign

Mr. Saadeddine Shehab, University of Illinois at Urbana

- Champaign

Dr. Blake Everett Johnson, University of Illinois at Urbana - Champaign

Prof. Yuting W. Chen, University of Illinois at Urbana - Champaign

Dr. Marcia Pool, University of Illinois at Urbana - Champaign

Kristin M. Chochola, University of Illinois at Urbana - Champaign

Using Systemic Functional Linguistics (SFL) to Create an Observation Protocol for Introductory Engineering Courses

Ing. Fabiola G. Rosales Sanchez, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute and State University

Ms. Karen Dinora Martinez Soto, Virginia Tech

M514B - Educational Research and Methods Division (ERM) Technical Session 5

3:15 P.M. - 4:45 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Amy Kramer, The Ohio State University

A Scoping Review of Concept Inventories in Engineering Education

Vincent Oluwaseto Fakiyesi, University of Georgia

Deborah Gbemisola Fabiyi, Washington State University

Isaac Damilare Dunmoye, University of Georgia

Mr. Olanrewaju Paul Olaogun, University of Georgia

Dr. Nathaniel Hunsu, University of Georgia

Assessing the Effectiveness of a Professional Formation in Engineering Course Sequence within the Electrical Engineering Department via Student's Readiness for Industrial Jobs: An Undergraduate Researcher's Investigation in a PAR Project

Duc Anh Vu Trinh, University of South Florida

Dr. Dhinesh Balaji Radhakrishnan, Purdue University

Dr. Chris S. Ferekides, University of South Florida

Enhancing Knowledge Surveys with an Intellectual Humility Scale

Dr. Kyle Luthy, Wake Forest University

Dr. Jessica Koehler, Wake Forest University

William N. Crowe, Wake Forest University

Towards a Survey Instrument for Use In Proactive Advising

Kenneth West, University of Florida

Dr. Bruce Frederick Carroll, University of Florida

Jinnie Shin, University of Florida

Dr. Kent J. Crippen, University of Florida

Using Cognitive Task Analysis to Observe the Use of Intuition in Engineering Problem Solving

Ms. Natalie Ugenti, Bucknell University

Miss Joselyn Elisabeth Busato, Bucknell University

Dr. Elif Miskioglu, Bucknell University

Dr. Kaela M. Martin, Embry-Riddle Aeronautical University, Prescott

Work in Progress: PEERSIST—An Observational Study of Student Questions to Identify Levels of Cognitive Processing

Sarah Johnston, Arizona State University

Cody D. Jenkins, Arizona State University

Ms. Thien Ngoc Y. Ta, Arizona State University, Polytechnic Campus

Dr. Ryan James Milcarek, Arizona State University

Dr. Gary Lichtenstein, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

Dr. Karl A. Smith, University of Minnesota, Twin Cities

Work In Progress: Development of a Taxonomy of Undergraduate Engineering Admissions Practices and Protocols

Dr. Trevor Franklin, Cornell University

M514C - Advancing Person-Centered Approaches and Critical Quantitative Approaches in Engineering Education

3:25 P.M. - 4:45 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

The purpose of this session is to introduce participants to the concept of person-centered approaches and critical quantitative frameworks such as QuantCrit. A person-centered approach refers to a set of methodological approaches that contrast with traditional statistical methods often employed in engineering education research, such as t-tests, analysis of variance, and various types of regression. A person-centered approach is used to understand the latent

groupings inside in the sample, which involves exploring how variables combine across individuals instead of how the measured variables predict the value of others.

M514D - Educational Research and Methods Division (ERM) Technical Session 6

3:15 P.M. - 4:45 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Isabella Stuopis, Tufts University

Engineering Students' Engagement and Learning Outcomes: A Typological Approach

Dr. Qin Liu, University of Toronto

Dr. Greg Evans P.Eng., University of Toronto

Oliver Pan, University of Toronto

Queer and Engineer? Exploring Science and Engineering Identity among LGBTQ People

Dr. Bryce E. Hughes, Montana State University

Nickolas Lambert, Montana State University

Emmanuel Tetteh Teye, Montana State University

The Effects of Length of Participation on Student Mental Health, Professional Identity, and Perceptions of Inclusion in Project-Based Engineering Programs

Dr. Lin Chase, Minnesota State University, Mankato

Mr. Rob Sleezer, Minnesota State University, Mankato

Dr. Michelle Soledad, Virginia Polytechnic Institute and State University

The Relationship between Mental Health, Professional Identity, and Perceptions of Inclusion in Project-Based Engineering Programs

Dr. Lin Chase, Minnesota State University, Mankato

Mr. Rob Sleezer, Minnesota State University, Mankato

Dr. Michelle Soledad, Virginia Polytechnic Institute and State University

"I see myself as an engineer": Disentangling Latinx Engineering Students' Perspectives of the Engineering Identity Survey Measure

Andrea (Lili) Lidia Castillo, Arizona State University

Dr. Dina Verdin, Arizona State University, Polytechnic Campus

Wellbeing of Graduate Engineering Students: A Systematic Review

Mr. Syed Ali Kamal, University at Buffalo, The State University of New York

Syeda Fizza Ali, Texas A&M University

Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York

M514E - 2024 FIE Planning Committee Meeting

3:15 P.M. - 4:45 P.M., COLUMBIA 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Educational Research and Methods Division (ERM)

Academia-Industry Connections, Advocacy and Policy, Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College

M515 - Assessment and Curriculum Development

3:15 P.M. - 4:45 P.M., G129, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Jennifer Bonniwell, Milwaukee School of Engineering; Gregory Lyman, Central Washington University

This session covers graduate classes in design verification, sophomore course evaluations, capstone project assessments, and circuit education strategies.

An Industrial Tool Based Graduate Class in ECE Design Verification Curriculum

Shruti Sharma, Portland State University

Prof. Xiaoyu Song, Portland State University

Mohamed Ghonim, Portland State University

Assessing Sophomore Cornerstone Courses in Electrical and Computer Engineering

Prof. Branimir Pejcinovic, Portland State University

Dr. Melinda Holtzman, Portland State University

Andrew Greenberg, Portland State University

An In-Depth Examination of Assessment Methods for Capstone Projects—Measuring Success

Kais Abdulmawjood, Texas A&M University at Qatar

Dr. Muhammad S. Zilany, Texas A&M University at Qatar

Muna Sheet, Lusail University

Faculty and Stakeholder Perspectives from a Workshop on Electricity Access Education

Prof. Henry Louie, Seattle University

Dr. Pritpal Singh, Villanova University

Dr. Susan M. Lord, University of San Diego

Scarleth Vanessa Vasconcelos, Villanova University

Using Oral Assessments to Improve Student Learning Gains

Dr. Saharnaz Baghdadchi, University of California, San Diego

Prof. Curt Schurgers, University of California, San Diego

Dr. Huihui Qi, University of California, San Diego

Hamad Alajeel, University of California, San Diego

M516 - Education in Sustainable Energy

3:15 P.M. - 4:45 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderator: Robert Kerestes, University of Pittsburgh

Speakers: Dr. Tony Lee Kerzmann, University of Pittsburgh; Jude Okolie, University of Oklahoma; Prof. Saquib Ahmed, SUNY Buffalo State University; Dr. David V.P. Sanchez, University of Pittsburgh

Leading academics with diverse backgrounds will discuss integrating sustainable energy concepts into engineering education. There will be a specific focus on teaching these concepts during a period of energy transition. Panelists include Tony Kerzmann of the University of Pittsburgh, Jude Okolie of the University of Oklahoma, Saquib Ahmed of SUNY Buffalo State University, and David Sanchez of the University of Pittsburgh, with each bringing unique insights from their extensive research and teaching experiences in renewable energy, decarbonization, nanotechnology, and sustainable engineering practices.

Ticketed event

M517A - Engineering and Public Policy Division (EPP) Technical Session 1

3:15 P.M. - 4:45 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Engineering and Public Policy Division (EPP)

Moderator: Daniel Oerther, Missouri University of Science and Technology

Race to R1: An Analysis of Historically Black College or University (HBCU) Potential to Reach Research 1 Carnegie Classification® (R1) Status

Dr. Trina L. Fletcher, Florida International University

Simone Nicholson, Florida International University

Dr. Christopher Alexander Carr, George Mason University

Tina Fletcher

Brittany Boyd

Understanding Federal STEM Education Initiatives

Dr. Jessica Centers, The MITRE Corporation

Ronald Hodge

Michael A. Balazs

Titilayo Ogunyale

Combating the Spread of Antibiotic Resistance Negotiation Simulation: Using Serious Games to Simulate Policy Deliberation

Mrs. Rebekah Riddle, Virginia Polytechnic Institute and State University

Todd Schenk, Virginia Polytechnic Institute and State University

Lucas Michael Goodman, Virginia Polytechnic Institute and State University

Impacts of the Implementation of a Strict Post-Tenure Review Policy on University Faculty

Dr. John R. Reisel P.E., University of Wisconsin, Milwaukee

M517B - Engineering and Public Policy Division (EPP) Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering and Public Policy Division (EPP)

Moderator: Daniel Oerther, Missouri University of Science and Technology

M519 - Engineering Economy Division (EED) Technical Session 1

3:15 P.M. - 4:45 P.M., B119, OREGON CONVENTION CENTER

Sponsor: Engineering Economy Division (EED)

Moderator: Billy Gray, Tarleton State University

Paper Presentations and Discussions for the Engineering Economy Division

Creation of Open-Source Course Materials for Engineering Economics Course with Help from a Team of Students—Lessons Learned

Dr. Tamara R. Etmannski, University of British Columbia

A Student Case Study on What is the Return on FICA Taxes?

Dr. Ted Eschenbach, University of Alaska

Dr. Neal A. Lewis, University of Nebraska

M520A - Encounters with Ethics: Research Highlights and Roundtable Discussion

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

In recent years, a new wave of research studies has explored how practicing engineers experience ethics, social responsibility, and related concerns. Much of this work has especially focused on the early career stages and school-to-work transition, with an eye toward improving how we prepare engineers to handle ethical issues as they launch their careers or pursue graduate degrees. This special session brings together a group of researchers who have carried out empirical studies of ethics in engineering practice. To inspire deeper conversation and exchange, prior to the conference the panelists will be asked to develop and share with one another research summaries and key papers from their respective projects. The reference lists included in these summaries will be compiled and shared with the session attendees.

Session Schedule and Plan:

• (5 min) Welcome, agenda, and introductions

• (25 min) Each panelist will summarize key research findings from their work.

o Angela Bielefeldt (CU Boulder) will discuss her previous research which included survey and interview results related to ethics, as well as interviews and surveys related to social responsibility. The responses indicate the frequency that engineers encountered various types of ethical issues in their work, and reflections on how their engineering education (both courses and co-curricular activities) prepared them to face ethical and societal issues in their work (or not).

o Justin Hess (Purdue) will focus on the connection between ethics and diversity, equity, and inclusion (DEI) in engineering practice based on interviews with 25 engineering practitioners. Like in engineering professional organizations, the phenomenon of ethics and DEI exhibit some explicit overlap in organizational codes of ethics. However, when we examine participant discourses, there seems to be much variation in how practitioners conceptualize, experience, and value ethics and DEI in their work.

o Rebecca Atadero (Colorado State) will present findings from their first round of interviews with 13 engineers who are early in their career, most within the first five years. These findings include the types of ethical or equity dilemmas early career engineers are encountering and their level of preparation and confidence in handling these dilemmas. Insights from preliminary analysis of a broader survey of early career engineers will also be shared.

o Brent Jesiek (Purdue) or another project co-PI will present highlights from a study examining how engineering students and professionals perceive and experience engineering ethics and related concepts. More specifically, they will report on evidence gleaned from both surveys and interviews, including longitudinal results from individuals who participated in the study as students and then as full-time graduate students and professionals.

o Cindy Finelli (University of Michigan) will focus on research-to-practice implications, including by discussing two course-based approaches to integrate ethics instruction into the curriculum and instill in students a sense of social responsibility. The first is a graduate level course to equip master's students with tools they need to be public welfare watchdogs, and the second is a series of one-class-session modules to engage students with sociotechnical issues in the introduction to circuits course.

• (25 min) The organizers will facilitate a roundtable discussion by inviting the panelists to comment on a series

of questions and prompts shared with them before the event, possibly including:

o How are we understanding or defining "engineering ethics" in our studies? What overlaps and/or key points of divergence have you noticed?

o What points of resonance and/or dissonance strike you as especially significant in the research findings assembled for this session?

o What theoretical frameworks or concepts are informing, or could potentially inform, our work? (e.g., moral development, moral disengagement, etc.)

o What research method innovations seem promising? How might we advance research in this domain with new data collection and analysis approaches?

o What research questions should we be asking or exploring as we imagine future studies in this area of scholarship?

o What significance or implications do the assembled findings point us toward, especially in terms of improving ethics education for students and professionals?

• (20 min) Breakout groups including panelists

• (15 min) Closing Q &A, discussion with panelists and audience

M520B - Professional Development and Engineering Ethics Education

3:15 P.M. - 4:45 P.M., A106, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Kerrie Hooper, Florida International University; Rajani Muraleedharan, Saginaw Valley State University

Professional development and engineering ethics education

Developing a Team-Based Regulatory Framework for Mobility Engineering Professionals

Ms. Man Liang, University of Maryland College Park

Mr. Michael P. McMeekin

Early-Career Engineers' Stories of Ethics and Equity in the Workplace: A Thematic Analysis

Dr. Amir Hedayati Mehdiabadi, University of New Mexico

Chika Winnifred Agha, Colorado State University

Dr. Rebecca A. Atadero, Colorado State University

Dr. Pinar Omur-Ozbek, Colorado State University

Carlotta Duenninger

Exploring the Influence of Identity Development on Public Policy Career Pathways for Engineers

Miss Bailey Kathryn McOwen, Virginia Polytechnic Institute and State University

Dr. Dayoung Kim, Virginia Polytechnic Institute and State University

Instilling Cultural, Ethical, Social, and Environmental Responsibility in Engineering Education and Practice – The National Academies' CESER Advisory Committee (Work in Progress, Examinations of Ethical Engineering/Environmental & Sustainability Concerns)

Dr. David A. Butler, National Academy of Engineering

Casey Gibson, National Academy of Engineering

M521 - Engineering Libraries Division AI & Information Literacy Teaching Exchange

3:15 P.M. - 4:45 P.M., REGENCY BALLROOM D , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Libraries Division (ELD)

Moderator: Chelsea Leachman, Washington State University

Calling all librarians and instructors passionate about innovative information literacy instruction! This dynamic session invites you to share and explore innovative ways of integrating AI into your teaching practice. Come ready to discover, discuss, and experiment with cutting-edge tools and techniques to empower your students to become effective and critical information consumers.

M522 - Engineering Management Division (EMD) Business Meeting

3:15 P.M. - 4:45 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Management Division (EMD)

Moderator: Jena Asgarpoor, University of Nebraska - Lincoln

M523A - ET Capstone Design Projects

3:15 P.M. - 4:45 P.M., A108, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Michael Johnson, Texas A&M University; Md. Ali Haider, Austin Peay State University

Structural Analysis and Laboratory Model of a U-Shape Pedestrian Bridge

Dr. Jorge Antonio Tito P.E., University of Houston, Downtown

Design, Development, and Testing of a Wi-Fi Enabled Minirhizotron for Ag Farms

Dr. Reg Recayi Pecen, Sam Houston State University

Emily Westerman

Dr. Junkun Ma, Sam Houston State University

Dr. Faruk Yildiz, Sam Houston State University

Autumn Smith-Herron, Sam Houston State University

Incorporating the Design and Development of an Educational Automated Manufacturing System Utilizing Desktop Equipment into Instruction of Various Courses

Dr. Junkun Ma, Sam Houston State University

Dr. Reg Recayi Pecen, Sam Houston State University

M523B - ASME MET Leadership Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

M523C - Innovative Pedagogical Strategies I

3:15 P.M. - 4:45 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Anne Lucietto, Purdue University at West Lafayette (PPI); Gang Sun, Northern Kentucky University

Motivating Students to Engage, Collaborate, and Persist with Classroom Podcast Creation

Dr. Thomas Lucas, Purdue University

Bhavana Kotla, Purdue Polytechnic Graduate Programs

Dr. Katey Shirey, EduKatey

Dr. Lisa Bosman, Purdue University, West Lafayette

Analyzing Student Perceptions of Various Pedagogical Strategies in a First-Year Engineering Technology Classroom

Mr. Troy Tonner, Purdue University, Fort Wayne

Dr. Joseph A. Lyon, Purdue University, West Lafayette

Starting from the End: Introducing a Final Exam Problem on the First-Class Meeting to Foster Curiosity and Engagement Throughout the Semester

Mr. Jeffrey Kinkaid, Montana State University, Bozeman

The Use of Chatbots in Engineering Including Critical Thinking and Problem Definition

Dr. Hugh Jack P. Eng., Western Carolina University

Dr. Yanjun Yan, Western Carolina University

Implementation of Project Based Learning in a Senior-Level Class in the Engineering Technology Program to Enhance Employment Opportunities

Dr. Venkata Avinash Paruchuri, University of Wisconsin, Platteville

Dr. Ismail Fidan, Tennessee Technological University

Dr. Fred Vondra, Tennessee Technological University

M524 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 3

3:15 P.M. - 4:45 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Antony Kinyua, Morgan State University; Ruben Lopez-Parra, Purdue University at West Lafayette (COE)

Developing the Entrepreneurial Mindset

Embracing a Fail-Forward Mindset: Enhancing Engineering Innovation through Reflective Failure Journaling

Mitra Varun Anand, Worcester Polytechnic Institute

Dr. Curtis Abel, Worcester Polytechnic Institute

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

Adam Sears, Worcester Polytechnic Institute

MBL (Mastery-Based Learning) Supports a Normalization of Failure as an Essential Part of Learning

Dr. Kurt M. Degoede, Elizabethtown College

Dr. Brenda Read-Daily, Elizabethtown College

Prof. Troy O. McBride, Elizabethtown College

Dr. Rachel Koh, Smith College

Active Learning Experience Incorporating Entrepreneurial Mindset in Engineering Mechanics Course

Dr. Lynn Dudash, University of Mount Union

The Impact of Invention Education Participation on Students' Confidence and Anxiety in STEM

Jasmine N. Patel, Georgia Institute of Technology

Alaina Lee Rutledge

Jayme M. Cellitioci, National Inventors Hall of Fame

Dr. Roxanne A. Moore, Georgia Institute of Technology

Work-in Progress: Engaging the Undergraduate Thermodynamics Classroom Using Mini-Adventures in the Entrepreneurial Mindset

Dr. Timothy Shenk, Campbell University

Dr. Najmus Saqib, Marian University

Marie Stettler Kleine, Colorado School of Mines

Dr. Aneesha Gogineni, Saginaw Valley State University

Dr. A. L. Ranen McLanahan, The Kern Family Foundation

Dr. Stephanie M. Gillespie, University of New Haven

M525 - Environmental Engineering Division Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 2, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Environmental Engineering Division (ENVIRON)

Business Meeting

M526 - ELOS Technical Session 3 - Diversity

3:15 P.M. - 4:45 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Jacob Bishop, Southern Utah University

Introducing Arduino to Mechatronics Engineering Students via Lab Activities and a Hands-On Signature-Thinking Course Project

Dr. Lei Miao, Middle Tennessee State University

Designing a Bioinstrumentation Lab for All Learners

Hannah Rosene Conover Kimmel, University of Illinois at Urbana - Champaign

Maya Sri Miriyala, University of Illinois at Urbana - Champaign

Hanwen Liang, University of Illinois at Urbana - Champaign

Megha Agrawal, University of Illinois at Urbana - Champaign

Kaitlyn Tuvilleja, University of Illinois at Urbana - Champaign

Dr. Rebecca Marie Reck, University of Illinois at Urbana - Champaign

Multiyear Vertically Integrated Engineering Design Project: A Story of Student Success

Dr. Nebojsa I. Jaksic, Colorado State University, Pueblo

Work-in-Progress: All-In-One, Open Source Mechatronics Actuator Education Platform for Active Learning Curriculum

Mr. Orlando D. Hulse, San Francisco State University

Kunal Avdesh Verma, San Francisco State University

Kevin Diaz Chim, San Francisco State University

Hyeon Soo Jung, San Francisco State University

Dr. David Quintero, San Francisco State University

Breaking Barriers: Promoting Motivation, Engagement, and Learning Success among Biology Undergraduates from Minority Backgrounds

Ms. Blessing Isoyiza Adeika, Morgan State University

Dr. Adedayo Ariyibi, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

M527 - First-Year Programs Division Technical Session 5: Identity & Belonging

3:15 P.M. - 4:45 P.M., F149, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Diana de la Rosa-Pohl, University of Houston - COE; Doris Espiritu, City Colleges of Chicago

This is a full paper session on supporting student identity and belonging as engineers.

Characterization of Stress, Sense of Belonging, and Engineering Identity in First-Year Engineering Students

Dr. Wee Sing Yeo, University of Cincinnati

Dr. Muhammad Asghar, Utah State University

Dr. Sheryl A. Sorby, University of Cincinnati

Evaluating the Impact of a First-Year Engineering Course Re-design in Students' Sense of Belonging

Mr. Joseph McCusker, University at Buffalo, The State University of New York

Matilde Luz Sanchez-Pena, 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

Examining the Engineering Self-Efficacy, Design Self-Efficacy, Intentions to Persist, and Sense of Belonging of First-Year Engineering Students through Community-Partnered Projects

Dr. Javeed Kittur, University of Oklahoma

Dr. Moses Olayemi, University of Oklahoma

Tierney Harvey, University of Oklahoma

Haley Taffe, University of Oklahoma

How Teaching Empathy to First-Year Engineering Students Interacts with Engineering Identity

Elizabeth Zanin Flanagan, Clemson University

Dr. Karen A. High, Clemson University

Investigating the Impact of First-Year Course Activities on Students' Identity and Sense of Belonging in Engineering and Computing

Dr. Jessica Sparks, Miami University

Dr. Katherine M. Ehlert, Miami University

Dr. Karen C. Davis, Miami University

Justin Michael Saul, Miami University

Dr. Brian P. Kirkmeyer, Miami University

David Joseph Fox, Miami University

Thao Nguyen, Miami University

Michael Hughes, Miami University

Building an Identity in the Makerspace

Danielle Francine Usinski, University at Buffalo, The State University of New York

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Dr. Emma Treadway, Trinity University

Alyndra Mary Plagge, Trinity University

Shea E. Lape

M527B - First-Year Programs Division Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: First-Year Programs Division (FYP)

Moderator: J. Hylton, Ohio Northern University

Business Meeting

M528 - Graduate Studies Division (GSD) Technical Session 3: Advising in Graduate Education

3:15 P.M. - 4:45 P.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Faculty Perspectives on Their Role in the Training of STEM Doctoral Students

Zilong Pan, Lehigh University

Anand Jagota, Lehigh University

Volkmar Dierolf, Lehigh University

Himanshu Jain, Lehigh University

Mapping the Departmental Doctoral Advising Landscape: A Case Study of Engineering Doctoral Advising from Faculty and Student Perspectives

Brian M. Chan, Virginia Polytechnic Institute and State University

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Harnessing the Strengths of Neurodiverse Students in Graduate STEM Fields: The Central Role of Advisor-Advisee Communication

Ms. Connie Syharat, University of Connecticut

Miss Alexandra Hain, University of Connecticut

Prof. Arash Esmaili Zaghi, University of Connecticut

Impacts of Near-Peer Mentoring Between Graduate Students and Undergraduate Transfer Students in Engineering and Computing

Shannon Conner, Clemson University

Skylar Hubbarth, Clemson University

Dr. D. Matthew Boyer, Clemson University

The Graduate Student Role in Undergraduate Research Mentoring: A Systematic Literature Review

Hayden Ross Asbill, Campbell University

Mitchell Ann Letchworth, Campbell University

Dr. Anastasia Marie Rynearson, Campbell University

Dr. Christina A. Pantoja, Campbell University

M530 - Computing and Information Technology Division (CIT) Technical Session 3

3:15 P.M. - 4:45 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Mudasser Wyne, National University; Dr. Jeffrey Yackley, University of Michigan - Flint

Generative-AI Assisted Feedback Provisioning for Project-Based Learning in CS Courses

Venkata Alekhya Kusam, University of Michigan, Dearborn

Larnell Moore, University of Michigan, Dearborn

Summit Shrestha, University of Michigan, Dearborn

Zheng Song, University of Michigan, Dearborn

Jin Lu, University of Georgia

Qiang Zhu, University of Michigan, Dearborn

Incorporation of Digital Image Processing into Cybersecurity Curriculum

Dr. M Nazrul Islam, State University of New York, Farmingdale

Integrating Cybersecurity in BSCS/BSIT Senior Design Capstone Projects: A Case Study

Dr. Radana Dvorak

Mr. John L. Whiteman, Saint Martin's University

Leading in the AI Era: An Interactive Experiential Hands-On Learning Approach for Professionals and Leaders

Dr. Sharifa Alghowinem, Massachusetts Institute of Technology

Dr. Aikaterini Bagiati, Massachusetts Institute of Technology

Dr. Andrés F. Salazar-Gómez, Massachusetts Institute of Technology

Prof. Cynthia Breazeal, Massachusetts Institute of Technology

Teaching SOLID Software Design Principles Using Peer Instruction—A Pilot Study

Dr. Bhuvaneswari Gopal, University of Nebraska, Lincoln

M532 - International Division (INTL) Technical Session: International Programs and Curricula I

3:15 P.M. - 4:45 P.M., D137, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Gloria Kim, University of Florida

This session will cover designing sustainable global engineering courses, programs, communities, and partnerships; enhancing learning in engineering education abroad in various modalities and durations; global innovation and trends in international education and STEM partnerships; international program development, language integration, and credit transfer; and international engineering programs and courses: case studies and best practices.

International Research for Undergraduate Students in Cali and Cartagena Colombia, 2009 TO 2019

Dr. Claude Brathwaite, City University of New York, City College

A Case Study: Organizing and Leading a 10-Day Field Trip to the UAE for Global Engineering Students

Prof. Loay Al-Zube, University of Mount Union

Exploring the Factors Related to Chemical Engineering Students' Study Abroad Choice

Andrea L. Schuman, Virginia Polytechnic Institute and State University

Miss Yi Cao, Virginia Tech

Dr. Homero Murzi, Virginia Polytechnic Institute and State University

Dr. David B. Knight, Virginia Polytechnic Institute and State University

Lessons Learned to Promote Teaching-Oriented Cross-Cultural International Mentoring and Collaboration

Prof. Carolyn "Kelly" Ottman, Milwaukee School of Engineering

Dr. Sohum A. Sohoni, Milwaukee School of Engineering

The International Engineering Educator Registry: Rubrics and Tool Used to Assess Registration Readiness and Professional Achievement

Dr. Jose Texier, LACCEI

Dr. Maria M. Larrondo-Petrie, Florida Atlantic University

Laura Romero

Charles Anders Bazile, Florida Atlantic University

Dr. Jose Carlos Quadrado, Instituto Superior De Engenharia De Lisboa

M533 - Mr. Burns' Brainchild: AI in the Springfield STEM Classroom, Release the Hounds!

3:15 P.M. - 4:45 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Ibrahim H. Yeter, Nanyang Technological University

This session will explore creative opportunities to integrate artificial intelligence in the pre-college classroom.

Using Artificial Intelligence (AI) Tools in Middle School Instruction and Its Impact

Dr. John M. Mativo, University of Georgia

Dr. Ramana Pidaparti, University of Georgia

Suren Jayasuriya, Arizona State University

Kimberlee Ann Swisher

Developing an AI and Engineering Design Hybrid-Remote Summer Camp Program for Underrepresented Students (Evaluation)

Alvin Talmadge Hughes IV, University of Florida

Jacob Casey Yarick, University of Florida

Dr. Nancy Ruzycki, University of Florida

Hajymyrat Serdarovich Geldimuradov, University of Florida

Sarah Louise Langham, University of Florida

Katherine Miller, University of Florida

Scaffolding AI Research Projects Increases Self-efficacy of High School Students in Learning Neural Networks (Fundamental)

S. Shailja, University of California, Santa Barbara

Mr. Satish Kumar, University of California, Santa Barbara

Arthur Caetano, University of California, Santa Barbara

Dr. Ayush Pandey, University of California, Merced

Exploring K-12 Teachers' Confidence in Using Machine Learning Emerging Technologies through Co-design Workshop (RTP)

Geling Xu, Tufts Center for Engineering Education and Outreach

Milan Dahal, Tufts Center for Engineering Education and Outreach

Mr. Brian Gravel, Tufts University

M534 - Collaborating for Change: Working With Students to Create a More Sustainable Future in Engineering Education and Practice

3:15 P.M. - 4:45 P.M., C126, OREGON CONVENTION CENTER

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

Moderator: Victoria Matthew, Broadening Impacts

Speakers: Reese Emily Simancek; Emma Telepo, Michigan State University; Hadley Willman, California Polytechnic State University, San Luis Obispo; Hadley Willman, California Polytechnic State University, San Luis Obispo

Curricular change is typically seen as the domain of faculty and campus administrators. However, such an approach fails to tap into the many benefits of engaging students in the process of curricular change. Such benefits include the incorporation of fresh and diverse perspectives, innovative and creative ideas, energy and enthusiasm, and the knowledge that the student experience is being designed for and with students.

In this highly interactive panel, we will hear from two undergraduate students and one recent graduate about their journey towards becoming changemakers. We will explore how their personal experiences, values, beliefs, and sociocultural contexts shape their access to, and desire for, sustainability-focused activities, and the degree to which they feel empowered to promote the kinds of changes they would like to see in the engineering education system.

Following the panel, participants will be guided through a process of creating their very own plan for engaging students in promoting curricular change on their campus.

M534B - AI and Tools for Transdisciplinary Work

3:15 P.M. - 4:45 P.M., B117, OREGON CONVENTION CENTER

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

Moderator: Kari Zacharias, University of Manitoba

Liberal Education/Engineering & Society Division (LEES) Paper Session

Beyond the Algorithm: Empowering AI Practitioners through Liberal Education

Tammy Mackenzie, The Aula Fellowship

Leslie Salgado, University of Calgary

Dr. Sreyoshi Bhaduri, ThatStatsGirl

Victoria Kuketz, Catalyst

Solenne Savoia, Mila-Quebec AI Institute

Dr. Lilianny Virguez, University of Florida

Design Iterations as Material Culture Artifacts: A Qualitative Methodology for Design Education Research

Dr. Grant Fore, Indiana University-Purdue University Indianapolis

Poetry, Creativity, and ChatGPT

Prof. Craig J. Gunn, Michigan State University

Meta-Activity Theory as a Conceptual Tool for Supporting Transdisciplinary Curricular Experimentation in Undergraduate Learning Contexts

Dr. Todd Nicewonger, Virginia Tech

Dr. Lisa D. McNair, Virginia Polytechnic Institute and State University

Left on their Own: Confronting Absences of AI Ethics Training among Engineering Master's Students

Elana Goldenkoff, University of Michigan

Dr. Erin A. Cech, University of Michigan

M535 - Advancements in Sustainable Manufacturing Practices

3:15 P.M. - 4:45 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Yalcin Ertekin, Drexel University; Aditya Akundi, University of Wisconsin - Milwaukee

Affordable and Localized Plastic Sheet Press Machine for Sustainable Manufacturing

Kenny Dwight Harris, Vaughn College of Aeronautics and Technology

Mr. Mahin Rajon Bhuyan, Vaughn College of Aeronautics and Technology

Mr. Gordon Qian, Vaughn College of Aeronautics and Technology

Alaric Hyland, Vaughn College of Aeronautics and Technology

Dr. Shouling He, Vaughn College of Aeronautics and Technology

Brandon Seth Cuevas, Vaughn College of Aeronautics and Technology

Elevating and Scoring Mechanism Design for Mobile Robots

Christopher Walker, Vaughn College of Aeronautics and Technology

Romaim Hernandez

Chasisty Melo, Vaughn College of Aeronautics and Technology

Samuel Hernandez

Dr. Shouling He, Vaughn College of Aeronautics and Technology

Dr. Hossein Rahemi, Vaughn College of Aeronautics and Technology

Design of a Monitoring System for CNC-Machining Processes

Dr. Zhenhua Wu, Virginia State University

Dr. Pamela Leigh-Mack, Virginia State University

Operation Conditions Empirical Optimization for Sustainability Manufacturing

Dr. Hayder Zghair, Southern Arkansas University

Noah Wesley Bretz, Southern Arkansas University

Jeffrey Sumner, Southern Arkansas University

M537 - Mathematics Division (MATH) Technical Session 2

3:15 P.M. - 4:45 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Moderator: Hadas Ritz, Cornell University

Keys to Success for an Alternative Grading Scheme in a Large Enrollment Differential Equations Course

Dr. Hadas Ritz, Cornell University

Stephan Wagner, Cornell University

On Teaching and Learning the Fundamentals of L'Hopital's Rule in Visual and Intuitive Ways

Juan David Yepes, Florida Atlantic University

Dr. Daniel Raviv, Florida Atlantic University

Toward Better Understanding of the Fundamental Theorem of Calculus

Juan David Yepes, Florida Atlantic University

Dr. Daniel Raviv, Florida Atlantic University

A Comprehensive Approach to Modeling Dynamic Biological Systems: Enhancing Critical Thinking and Mathematical

Problem-Solving in Biomedical Engineering Education

Caleb Wilson Hendrick, University of Maine

Prof. Karissa B. Tilbury

Understanding Students in Times of Transition: The Impact of the COVID-19 Pandemic on Engineering Students' Math Readiness and Transition into Engineering

Olivia Ryan, Virginia Polytechnic Institute and State University

Susan Sajadi, Virginia Polytechnic Institute and State University

M538B - Mechanical Engineering Division Business Meeting

3:15 P.M. - 4:45 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Mechanical Engineering Division (MECH)

ME Division Business Meeting

M539 - Applications and Computational Tools for Mechanics Education

3:15 P.M. - 4:45 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderator: Masoud Rais-Rohani, University of Maine

Effects of Integrating Computational Tools into an Introductory Engineering Mechanics Course

Wayne Chang, University of Illinois Urbana-Champaign

Seung Woo Ok, University of Illinois Urbana-Champaign

Prof. Matthew West, University of Illinois Urbana-Champaign

Sascha Hilgenfeldt, University of Illinois Urbana-Champaign

Prof. Mariana Silva, University of Illinois Urbana-Champaign

Impacts of a Free-body Diagram Mobile App on Content Mastery and Women's Self-Efficacy

Dr. Andrew R. Sloboda, Bucknell University

Dr. Kimberly LeChasseur, Worcester Polytechnic Institute

Prof. Sarah Wodin-Schwartz P.E., Worcester Polytechnic Institute

Multidimensional Aspects of Vector Mechanics Education Using Augmented Reality

Dr. James Giancaspro, University of Miami

Dr. Diana Arboleda, University of Miami

Ms. Seulki Jenny Chin, University of Miami

Liping Yang, University of Miami

Walter G. Secada, University of Miami

Utilizing Augmented Reality and 3D Models to Enhance Conceptual Knowledge and Visualization of 3D Problems in Engineering Mechanics Courses: Case Study of Statics

Prof. Nathan Miner, Iowa State University of Science and Technology

Prof. Alice Alipour P.E., Iowa State University of Science and Technology

Learning Tool to Enhance Understanding of Stress States and Mohr's Circle

Simon Livingston-Jha, University of Wisconsin, Madison

Haozhong Deng, University of Wisconsin, Madison

Yuhao Huai, University of Wisconsin, Madison

Dr. Jennifer Detlor, University of Wisconsin, Madison

M540 - Diverse Pathways: Exploring Inclusive Practices and Outreach in Engineering Education

3:15 P.M. - 4:45 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Aref Majdara, Washington State University; Amr Hassan, University of Pittsburgh

This session will delve into various initiatives and research endeavors aimed at promoting diversity and inclusion in engineering education. Presentations will cover a range of topics, including hands-on outreach activities targeting underrepresented groups in local schools, narratives of post-traditional students in undergraduate engineering programs, and evaluations of diversity's impact on team performance. Attendees will gain insights into effective strategies for fostering diversity, equity, and inclusion in engineering education, as well as the importance of mentorship and support programs for underrepresented students. Join us for an engaging discussion on advancing diversity and excellence in engineering education.

A Hands-on Outreach Activity to Promote Electrical Engineering to Underrepresented Groups in Local Middle and High Schools

Dr. Aref Majdara, Washington State University, Vancouver

Dr. Dave Kim, Washington State University, Vancouver

A Narrative Exploration of Two Post-Traditional Students in

Undergraduate Engineering Education

Maimuna Begum Kali, Florida International University

Gabriel Van Dyke, Utah State University

Dr. Stephen Secules, Florida International University

Dr. Cassandra McCall, Utah State University

Dr. Bruk T. Berhane, Florida International University

Vanessa Tran, Utah State University

Agustina Dotta Ceriani, Florida International University

WIP: Evaluating The Effectiveness of Diversity on Teams' Performance in Engineering Education

Prof. Amr Hassan, University of Pittsburgh

Dr. Mohamed A. S. Zaghloul,

Dr. Irene Mena, University of Pittsburgh

Evaluation of Current Graduate Student Preparation in First Year After Completing the GradTrack Scholars Virtual Mentoring Program as an Undergraduate Student

Lexy Chiwete Arinze, Purdue University at West Lafayette

Dr. Jacqueline E McDermott, Purdue University at West Lafayette

Dr. Janet M. Beagle

M541 - Multidisciplinary Engineering Division (MULTI) Technical Session 2

3:15 P.M. - 4:45 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Junior Bennett, Purdue University at West Lafayette (COE); Partha Kumar Das, University of Illinois at Urbana - Champaign

Can Writing Assignments Help Foster Engineers Who Will Thrive in a Globalized World? Comparing Students' Written English Levels and Overall Performance in Humanities Modules in Engineering Curricula

Prof. Hatsuko Yoshikubo Ph.D., Shibaura Institute of Technology

Prof. Gabriele Trovato Ph.D., Shibaura Institute of Technology

Prof. Ahmet Cetinkaya Ph.D., Shibaura Institute of Technology

Co-offering Engineering and Non-Engineering Courses on Faculty-led Trips to Foster Global Competence via Interdisciplinary Learning

Dr. Yanjun Yan, Western Carolina University

Gael Graham, Western Carolina University

Dr. Russell Sarwar Kabir, Hiroshima University

Integrating Problem-Solving Studio into an Introduction to Engineering Course via a Real-World Project

Dr. Huan Gu, University of New Haven

Work-in-Progress: Pursuing STEM/STEAM Certification as a Method for Maintaining an Integrated STEM/STEAM Learning Environment

Talia Capozzoli Kessler, Georgia Institute of Technology

Keisha Simmons, Georgia Institute of Technology

Ms. Katherine Leigh Boice, Georgia Institute of Technology

Justina Jackson, Georgia Institute of Technology

Jasmine Choi, Georgia Institute of Technology

Dr. Meltem Alemdar, Georgia Institute of Technology

Improving Technology Student Critical Thinking Skills Through Trained Writing Tutor Interactions

Dr. David Clippinger, Behrend College

Ms. Ruth Camille Pflueger, Penn State University

Dr. Steven Nozaki, Penn State University

M542 - Assessment Design in the Age of Generative AI

3:15 P.M. - 4:45 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: New Engineering Educators Division (NEE)

Moderators: Sanaz Motamedi, University of Florida; Lizandra Godwin, University of New Mexico

Speakers: Leanne Dawson, University of Calgary; Dr. Emily Ann Marasco, University of Calgary

With the rise of generative AI tools such as ChatGPT, educators are struggling to understand how these tools should be used in the classroom. There has been much discussion around whether generative AI tools should be allowed and how can we detect students who use it to complete assignments. This session proposes a different approach, focused on how we can modify our courses around generative AI and prepare our students for their future careers.

This session will answer these three questions:

1. How can we modify our assessments to accommodate generative AI?

2. How can we use generative AI to aide the instructors with preparing assessments?

3. How can we teach the students to use generative AI to support their learning?

In this session, the presenter(s) will share lessons learned from open use of generative AI in introduction to machine learning courses. These courses were implemented at various levels (third year undergraduate students up to course-based graduate students) and included teaching the students about proper and ethical use of different generative AI tools.

Session format:

The format of this session will alternate between instructional content and group discussions. The presenter(s) will discuss the three questions listed above using examples from their own teaching experience. After each topic is covered, participants will be given time to discuss the topic in small groups. The session will provide handouts with prompt questions to facilitate discussions within the small groups around the different topics.

Expected outcomes:

The participants will learn how to:

1. Reframe assessments so that we are assessing student understanding instead of their use of generative AI.

2. Use generative AI for brainstorming assessments and exploring different ways to explain complex topics.

3. Introduce generative AI and the ethical dilemmas surrounding it to students.

4. Discuss proper use of generative AI with students.

The aim of this session is to provide participants with concrete ideas on how they can incorporate generative AI into their classes and how they can support students in using these tools to help them be successful.

M545 - STEAM Education into the 2030s

3:15 P.M. - 4:45 P.M., C125, OREGON CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Speakers: Prof. Angeles Dominguez, Tecnologico de Monterrey (ITESM); Dr. Stacy S. Klein-Gardner, Vanderbilt University

M547 - Student Division Technical Session 3: Student Experiences and Support

3:15 P.M. - 4:45 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: D'andre Wilson-Ihejirika, University of Toronto; Mandana Ashouripashaki, The Ohio State University

Designing A Student Success Framework with Zachman Architecture

Mr. Benjamin Edward Chaback, Embry-Riddle Aeronautical University

Bryan Watson, Embry-Riddle Aeronautical University

WIP: Using Games and Robotics to Teach Computer Programming in High School STEM Classes: A Collective Case Study

Leslie Anna Brown, Utah State University

Dr. Marissa A. Tsugawa, Utah State University

Developing KSAs in Engineering Capstone Students (WIP)

Ms. Maryann Renee Hebda, Baylor University

Morgan R. Castillo, Baylor University

Tracey Sulak, Baylor University

Work in Progress: A Collaborative Reflection Exploring the Teaching Motivation and Identity Development for International Graduate Students in Engineering

Sruthi Dasika, Purdue University

Anyerson Cuervo, Purdue University

Amena Shermadou, Purdue University

Encountering Axiology: Engineering Graduate Students' Experiences with Values in an Engineering Research Center

Mr. Herman Ronald Clements III, Purdue University

Alexander V. Struck Jannini, Purdue University

M550 - STEM and the Two-Year College

3:15 P.M. - 4:45 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Nagash Clarke

STEM-related programs at the two-year college

Empowering Hispanic Students in STEM through Financial

Literacy

Dr. Ali Zilouchian, Florida Atlantic University

Dr. Nancy Romance, Florida Atlantic University

Dr. Hanqi Zhuang, Florida Atlantic University

How Community College Transfer NSF S-STEM Scholars in Engineering Spend Scholarship Funds to Enhance Their Academic Success

Dr. Will Tyson, University of South Florida

Dr. Sanjukta Bhanja, University of South Florida

Geeti Anwar, University of South Florida

Elise Kuechle, University of South Florida

Paid STEM Core Internships: Impacting Skillsets and Career Trajectories for Community College STEM Students

Mrs. Cheryl Martinez, Growth Sector

Mr. Gabe Hanzel-Sello

Ivanna Abreu

Spatial Skills and Visualization Training for Future STEM Careers

Dr. Dan G. Dimitriu P.E., San Antonio College

Clint Taylor

Sam Ximenes, WEX Foundation

Shazia Iqbal, Rice University

Kathryn Bolish

[Work-In-Progress] A Systematic Review of S-STEM Programs in Community Colleges: Program Features and Student Decision-making

Dr. Maria L. Espino, University of Washington

Elizabeth Meza, University of Washington

M551 - Women in Engineering Division (WIED) Technical Session 1 - Women in Computing

3:15 P.M. - 4:45 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Suzanne Zurn-Birkhimer, Purdue University at West Lafayette (COE)

The papers in this session address women in the computing/computer science fields.

Impact of Undergraduate Teaching Assistants (UTAs) on Gender-inclusive Student Engagement in an Introductory Computer Programming Course

Mrs. Tiana Solis, Florida International University

Dr. Stephen Secules, Florida International University

"I Always Feel Dumb in Those Classes": A Narrative Analysis of Women's Computing Confidence

Amanda Ross, Virginia Polytechnic Institute and State University

Dr. Sara Hooshangi, The George Washington University

Analyzing the Impact of Multi-Faceted Women in Computing Support Programs on Women Computing Students

Dr. Ilknur Aydin, Farmingdale State College, SUNY, New York

Mary V. Villani, Farmingdale State College, SUNY, New York

Dr. Lisa Cullington, Sacred Heart University

Experience of Women Undergraduates Attending a Trip to a Regional Women in Computing Celebration

Dr. Mary V. Villani, Farmingdale State College, SUNY, New York

Dr. Ilknur Aydin, Farmingdale State College, SUNY, New York

Dr. Lisa Cullington, Sacred Heart University

M557 - DISTINGUISHED LECTURE: Supporting Change Makers in STEM with the Change Maker's Toolkit

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

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

As developers, you support academics in STEM who wish to change their teaching, their classrooms, and their curricula. Your expertise helps them understand how improving pedagogy can transform both student learning and their own academic experiences. Even as these change makers take on this important work, they may encounter resistance to their efforts from others who see pedagogical change as a challenge to the traditions of the department or the college, or they may struggle to communicate about the change they envision with audiences within and outside of their department. The purpose of this distinguished lecture is to introduce you to a change maker's "toolkit" that you can use to provide additional support to the individuals with whom you work.

The format will depart from a traditional lecture and instead

provide hands-on practice with two change-maker tools that have been effective with a variety of groups (faculty - teaching track, tenure-track and tenured), department chairs, college administrators, graduate students, and post-doctoral researchers).

In addition to the hands-on portions of the talk, Williams will discuss how equipping individuals with these tools can help them overcome the obstacles that can often derail any pedagogical innovation. The tools introduced are from Williams's own book, *Making Changes in STEM Education: The Change Maker's Toolkit*, published by Routledge in 2023. The approach in the book is to present practical tools in support of change makers that are based in research from various fields (e.g., organizational psychology, higher education, etc.). In addition to the hands-on sessions, Williams will make time to solicit from attendees the challenges they have encountered within their own work to promote change in STEM contexts; from their feedback, Williams plans to offer additional resources that they can pursue after the lecture is concluded.

As a result of attending this session, participants will:

1. Understand the purpose of the change maker's toolkit as a way to support STEM academics who wish to make change in their specific educational contexts

2. Learn about two change maker tools that have been applied in a variety of academic environments

3. Practice these tools in order to determine their relevance to your own educational context

4. Offer their feedback regarding the specific challenges change makers face on their campus

M557B - Faculty Development Division (FDD) Technical Session 3

3:15 P.M. - 4:45 P.M., F150, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Grenmarie Agresar, University of Michigan; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 3

Designing Inclusive Teaching Workshops with Non-Tenure-Track Faculty in Mind

Dr. Kenya Z. Mejia, California State University, Los Angeles

Dr. Corin L. Bowen, California State University, Los Angeles

Dr. Lizabeth L. Thompson P.E., California Polytechnic State University, San Luis Obispo

Dr. Yilin Feng, California State University, Los Angeles

Dr. Gustavo B. Menezes, California State University, Los Angeles

Fostering Innovation: Insights from Faculty Participation in Teaching-Focused Communities of Practice

Dr. Yonghee Lee, University of Illinois at Urbana-Champaign

Dr. Jay Mann, University of Illinois at Urbana-Champaign

Chris Migotsky, University of Illinois

How Communities of Transformation Support Change Agency

Selen Güler, University of Washington

Rae Jing Han, University of Washington

Dr. Elizabeth Litzler, University of Washington

Dr. Eva Andrijcic, Rose-Hulman Institute of Technology

Dr. Sriram Mohan, Rose-Hulman Institute of Technology

Lessons Learned about Empowering Engineering Instructional Faculty through a Group Coaching Model

Gemma Henderson, University of Miami

Dr. Ines Basalo, University of Miami

Dr. Alexandra Coso Strong, Florida International University

Dr. Meagan R. Kendall, University of Texas at El Paso

Positive Leadership: An Intentional Approach to Faculty Leadership Development

Dr. Heidi M. Sherick, University of Michigan

Valerie N. Johnson, University of Michigan

Ms. Heather Wagenschutz, University of Michigan

M558 - Engineering Communicators Constituent Committee Division (ENGCOMM) Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Communicators Constituent Committee Division (ENGCOMM)

M559 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 5

3:15 P.M. - 4:45 P.M., A107, OREGON CONVENTION CENTER

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

DEI Task Force Accomplishments: The DEI Scholars Program and its DEI Elective Option

Dr. Dustyn Roberts, University of Pennsylvania

William Schlatterer, University of Pennsylvania

Seon Woo Lee, University of Pennsylvania

Mr. Jonathan Singleton, University of Pennsylvania

Dr. Byron Lee, University of Pennsylvania

Michelle Jillian Johnson, University of Pennsylvania

Dr. Robert W. Carpick, University of Pennsylvania

Examining STEMM Mentorship within Student Organizations in Higher Education through a Critical Lens

Kassandra Fernandez, University of Florida

Krista Dulany Chisholm, University of Florida

Dr. Nancy Ruzycki, University of Florida

Exploring Department Readiness for Equity-Work and Inclusive Practices in Engineering PhD Programs: A Competing Values Approach

Teirra K. Holloman, Virginia Tech Department of Engineering Education

Julia Machele Brisbane, Virginia Polytechnic Institute and State University

Natali Huggins

Dr. Walter C. Lee, Virginia Polytechnic Institute and State University

Dr. David B. Knight, Virginia Polytechnic Institute and State University

Exploring Self-Efficacy and Sense of Belonging in Engineering: The Role of Institutional Support

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Chile

Exploring Student and Faculty Beliefs about Inclusive Teaching in Engineering

Keith Fouch, California Polytechnic State University, San Luis Obispo

Zoey Camarillo, California Polytechnic State University, San Luis Obispo

Dr. Ben Lutz, California Polytechnic State University, San Luis Obispo

M559B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 13

3:15 P.M. - 4:45 P.M., B118, OREGON CONVENTION CENTER

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

WIP: The Role of Classroom Teaching Practices on the Academic Success of Engineering College Students with ADHD

Nolgie O. Oquendo-Colón, University of Michigan

Miss Xiaping Li, University of Michigan

Dr. Cynthia J. Finelli, University of Michigan

WIP: Understanding the Experiences of Neurodivergent Learners in Engineering and Computing Majors

Delanie Robertson, Clemson University

Leila Elizabeth Williams

Kylie Nicole Avitabile, Clemson University

Dr. D. Matthew Boyer, Clemson University

Websites as Gateways to Inclusive Partnerships: Examining Diversity Representation for Environmental Nonprofits and Engineering Programs in Buffalo, New York

Dr. Monica Lynn Miles, University at Buffalo, The State University of New York

Dr. Corey T. Schimpf, University at Buffalo, The State University of New York

Dr. Nicole Lowman, University at Buffalo, The State University of New York

Kate Haq, University at Buffalo, The State University of New York

Why our Current Conception of Spatial Skills is at Odds with Equity in Engineering Education

Dr. Kristin A. Bartlett, University of Kentucky

Work in Progress: Developing and Measuring the Adoption of Identity-Inclusive Computing Tenets

Dr. Brean Elizabeth Prefontaine, Duke University

Dr. Alicia "Nicki" Washington, Duke University

Shaundra Bryant Daily, Duke University

Dr. Brianna Blaser, University of Washington

Joanna Goode, University of Oregon

Prof. Valerie B. Barr, Union College

M574 - Engineering Deans Council (EDC) Business Meeting

3:15 P.M. - 4:45 P.M., COLUMBIA 3 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Deans Council (EDC)

EDC Business Meeting

M575 - ERC Board Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Research Council (ERC)

ERC Board Meeting

M581 - Weathering the Storm Together: A Community Conversation among Change Agents Navigating a Shifting Political Landscape

3:15 P.M. - 4:45 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Jeremi S. London, Vanderbilt University; Mrs. Brianna Benedict McIntyre, National Action Council for Minorities in Engineering, Inc.; Nicole Adia Jefferson, Virginia Polytechnic Institute and State University

Despite substantial investments to improve outcomes for minoritized students, Black and Brown engineers remain underrepresented in engineering education and the workforce. Several studies have revealed how systemic inequities are baked into engineering education. However, there is a need for scholarship that advances our understanding of actionable systemic changes that center equity and challenge the exclusionary cultural norms perpetuated in engineering education. Moreover, the importance of timing of this conversation cannot be overstated, given the surge of anti-DEI policies and laws since 2020. This community conversation will highlight the inequities in engineering education policies, programs, and initiatives and equip participants with tools to evaluate and rectify inequities. Anyone interested in attending this session should be prepared to problematize policies, programs, and initiatives in their institutional context.

M581B - Disabled Student Experiences in Engineering: How to Improve Our Classroom Accessibility

3:15 P.M. - 4:45 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Emily Violet Landgren, University of Texas at Austin; Elisa Koolman, University of Texas at Austin; Dr. Maura Borrego, University of Texas at Austin; Ariel Chasen, University of Texas at Austin

This workshop aims to assist instructors, including professors, graduate-teaching assistants or any other engineering educators, in developing competency to accommodate students with disabilities in their classrooms. Participants will be provided with insight into the importance of accommodations, empathy, and proactive accessibility based on prior data and personal experience. In small groups, participants will participate in group discussions, case studies, hands-on learning of software, and gamified visualizations, where they will learn how to make visuals and audio accessible, communicate empathy and flexibility, and broaden their toolkit of accessibility strategies for the classroom. This session will specifically target accessibility tools in the engineering classroom and lab.

M594 - SPONSOR TECH SESSION: EMpowering Your Next Career Steps - Presented by EngineeringUnleashed

3:15 P.M. - 4:45 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Have you ever wondered how you could set yourself apart when applying for jobs after graduate school? What knowledge, skills, and attributes should you highlight in your applications? This session will provide you with an Entrepreneurial Mindset (EM) framework that ties back to elements that can be helpful for future careers (academic, industrial, government, etc.). The session will employ concept maps to help identify EM elements that you may

have already developed and include a panel with current graduate students discussing how EM has contributed to their career development. The session will conclude with resources that can be used to further strengthen your EM and how you can leverage the Engineering Unleashed community to meet these goals.

Workshop Facilitators:

•Cheryl Bodnar (Rowan University)

•Stephanie Cutler (Penn State)

•Cayla Ritz (PhD student at Rowan University)

M594A - SPONSOR TECH SESSION: From Evidence-based Research to Impact - Insights from e4usa's NSF-funded Initiatives

3:15 P.M. - 4:45 P.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join us to explore the transformative impact of Engineering for US All (e4usa)!

In this 90-minute session, we will delve into e4usa's journey over the past six years as an NSF-funded project while highlighting the strong research foundation that underpins the newly formed 501(c)(3) e4usa nonprofit organization. We will present a subset of our team's research findings spanning more than two decades and discuss how this research has shaped e4usa's trajectory. Specifically, we will review research findings on assessing student learning on open-ended, team-based engineering design projects, promoting diversity in engineering, designing inclusive curricula, and developing professional learning for high school teachers.

The session format includes a 60-minute presentation linking key research findings with the operational elements of the e4usa non-profit stemming from these findings. This will be followed by a 30-minute interactive segment where attendees can engage directly with our team. This segment encourages discussions on potential collaborations, reflections on our research findings, and sharing strategies for scaling similar projects for broader impact. Do not miss this opportunity to contribute to the dialogue aimed at democratizing and demystifying engineering for all.

Speakers/Facilitators:

●Darryll Pines, University of Maryland

●Samuel Graham, University of Maryland

●Stacy Klein-Gardner, Engineering for US All

●Adam Carberry, Ohio State University

●Medha Dalal, Arizona State University

●Jennifer Kouo, Johns Hopkins University

●Kevin Calabro, University of Maryland

●Bruk Berhane, Florida International University

●Cathy Lachapelle, STEM Education Insights

●Jeannie Chipps, Johns Hopkins University

●Samieh Askarian, University of Cincinnati

●Colleen Murray, University of Maryland

M669 - FOCUS ON EXHIBITS: Summertime Social

5:00 P.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Wind down Monday evening at the Summertime Social. Beat the heat with refreshing cold lemonade and mingle with fellow attendees in a relaxed atmosphere. Make sure to check out the exhibitor booths!

M706 - Civil Engineering Division RAP Session

6:00 P.M. - 9:00 P.M., OFFSITE, SPIRIT OF 77, 500 NE MARTIN LUTHER KING JR BLVD PORTLAND, OR 97232

Sponsor: Civil Engineering Division (CIVIL)

Spirit of 77

500 NE Martin Luther King Jr Blvd

Portland, OR 97232

Free ticketed event

M721 - Engineering Libraries Division Welcome Reception and Dinner

6:30 P.M. - 9:30 P.M., OFFSITE, OFF-SITE BY INVITATION ONLY, TBD

Sponsor: Engineering Libraries Division (ELD)

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

M7110 - Campus Representative Member Recruitment Awards Reception

7:00 P.M. - 9:00 P.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Campus Representatives

Annual campus representatives' reception and awards ceremony

Free ticketed event

M715 - ECE Division Social

7:00 P.M. - 9:00 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

M717 - Engineering and Public Policy Division (EPP) Mixer

7:00 P.M. - 9:00 P.M., OFFSITE, TBD, TBD

Sponsor: Engineering and Public Policy Division (EPP)

Moderator: Daniel Oerther, Missouri University of Science and Technology

M7195 - Data Science and Analytics Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, THE EASTBURN, 1800 EAST BURNSIDE ST. PORTLAND, OR 97214 503-236-2876

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Bala Maheswaran, Northeastern University; Ilya Grinberg, SUNY Buffalo State University

The DSA social function is to provide attendees with opportunities for networking, relaxation, and social interaction. These functions serve as a complement to the more formal conference activities such as technical sessions, panel discussions, and workshops.

M725 - Environmental Engineering Division (ENVIRON) Social

7:00 P.M. - 9:00 P.M., OFFSITE, THE DAN & LOUIS OYSTER BAR, 208 SW ANKENY ST, PORTLAND, OR 97204

Sponsor: Environmental Engineering Division (ENVIRON)

Payment for the event will be handled at the venue (not through registration); however, we ask you register for headcount purposes. Location is the Dan & Louis Oyster Bar (208 SW Ankeny St., Portland). Points of contact are Dr. Stephanie Laughton (slaughto@citadel.edu) and Dr. Andrew Pfluger (andrew.pfluger@westpoint.edu).

M727 - First-Year Programs Division Social

7:00 P.M. - 9:00 P.M., OFFSITE, PUNCH BOWL PORTLAND, 340 SW MORRISON ST, SUITE 4305, PORTLAND, OR 97204

Sponsor: First-Year Programs Division (FYP)

Moderator: Joshua Hertz, Northeastern University

Join us for a fun evening at PunchBowl Social Portland! Your ticket includes dinner featuring hummus (GF, V), kale Caesar salad (GF), tacos (GF, V options), and dessert. In addition, the event will include two complimentary drinks and a range of activities! Hit the lanes for some fun-filled bowling, show off your singing skills with karaoke, or challenge your friends and colleagues to a game of billiards.

Special thanks to EMIFY and KEEN for their generous sponsorship of this event!

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

M738 - Mechanical Engineering Division Convivium

7:00 P.M. - 9:00 P.M., OFFSITE, PIPS & BOUNCE , 833 SE BELMONT ST PORTLAND, OR 97214

Sponsor: Mechanical Engineering Division (MECH)

Dinner

Ticketed event: $60.00 advanced registration and $70.00 on site registration

M741 - MULTI Business Meeting / Social

7:00 P.M. - 8:00 P.M., OFFSITE, SPIRIT OF 77 | PORTLAND SPORTS BAR, LIL SPIRIT PRIVATE SPACE, 437 NE LLOYD BLVD, PORTLAND, OR 97232

Sponsor: Multidisciplinary Engineering Division (MULTI)

Come join MULTI at the Spirit of 77 for an evening of delicious food and drink! Business Meeting followed by Social.

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

M745 - Engineering Physics Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, THE EASTBURN, 1800 EAST BURNSIDE ST. PORTLAND, OR 97214 503-236-2876

Sponsor: Engineering Physics and Physics Division (EP2D)

A chance to sit down, eat, and socialize with other members of the division. We will meet at a local restaurant for dinner and good company.

Free ticketed event

M723 - Berger and McGraw Awards Dinner - Engineering Technology Division

7:30 P.M. - 9:30 P.M., OFFSITE, GRAND AMARI, 509 SE GRAND AVENUE, PORTLAND, OREGON 97214

Sponsor: Engineering Technology Division (ETD)

Ticketed event: $75.00 advanced registration and $85.00 on site registration

T69 - Sunrise Yoga

7:00 A.M. - 7:45 A.M., OREGON BALLROOM FOYER/PLAZA, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T169A - ASEE Registration Open

8:00 A.M. - 5:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T169B - Complimentary Childcare - Limited Availability - Advanced Registration Required

8:00 A.M. - 5:00 P.M., HOLLADAY SUITE - CHILDCARE ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

https://form.jotform.com/KiddieCorp/aseekids

ADVANCE REGISTRATION REQUIRED:

We are delighted to announce that KiddieCorp will be hosting the children's program during the 131st Annual Conference and Exposition. With thirty-eight years of experience, KiddieCorp has been a trusted provider of high-quality children's programs and youth services for conventions, trade shows, and special events.

KiddieCorp's longstanding partnership with the American Academy of Pediatrics has played a key role in establishing us as a premier provider of children's program services. Our commitment to caring for your children is our top priority, ensuring they not only have fun but also receive excellent care.

CHILDREN'S PROGRAM DETAILS

Date and Hours:

Sunday, June 23 -8:00 a.m. to 5:00 p.m.

Monday, June 24 - 8:00 a.m. to 5:00 p.m.

Tuesday, June 25 - 8:00 a.m. to 5:00 p.m.

Wednesday, June 26 - 7:00 a.m. to 5:30 p.m.

Ages:

6 months through 15 years old

Ratios:

1:2 for children ages 6 months through 11 months old

1:3 for children ages 1 through 2 years old

1:5 for children ages 3 through 5 years old

1:7 for children ages 6 through 12 years old

1:10 for children ages 13 through 15 years old

Registration:

Child care hours are provided in 2-hour blocks (with the exception of the last hour). Please book only the block(s) you intend to utilize. Child care availability is limited and operates on a first-come, first-served basis. A waitlist will be initiated once capacity is reached.

Please note that this program is complimentary for attendees of the ASEE Annual Conference only.

Please note: To prevent overbooking, a credit card will be required to confirm your reservation. This credit card information will be kept on file and will only be charged if you fail to attend your reserved days/hours or if you cancel your entire reservation after June 10, 2024.

You have until June 10th to make changes to your reservation without incurring a fee. After this date, a $50.00 per day no-show/cancellation fee will apply.

Advance registration deadline: June 10, 2024

We encourage early registration as availability is limited and operates on a first-come, first-served basis. To secure advance reservations, both the registration form and credit card info must be received by KiddieCorp. On-site registration will be limited to available space.

T169C - Mothers Room

8:00 A.M. - 5:00 P.M., A102 - MOTHERS ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T169D - Quiet Room

8:00 A.M. - 5:00 P.M., A101 - QUIET ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T172A - TUESDAY PLENARY & Corporate Member Council Keynote Speaker

8:00 A.M. - 9:00 A.M., PORTLAND BALLROOM A - GENERAL SESSION , OREGON CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Grant Crawford, Quinnipiac University

Speakers: Sri Yash Tadimalla; Jim Hanna, Microsoft Corporation

ASEE President-Elect Grant Crawford takes the stage at the Tuesday plenary, offering remarks and recognizing the best Professional Interest Council (PIC); Zone; and Diversity, Equity, and Inclusion papers. Authors will provide short presentations on their papers. Finally, two visionary leaders will offer the Corporate Member Council keynote through a thought-provoking "fireside chat"-style conversation that promises to spark innovation, inspire change, and leave you with invaluable insights.

T204 - Biomedical Engineering Education Showcase

9:15 A.M. - 10:45 A.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Biomedical Engineering Division (BED)

Moderators: Amy Adkins, North Carolina State University at Raleigh; Sharon Miller, Purdue University at West Lafayette (COE); Xianglong Wang, University of California, Davis; Colin Drummond, Case Western Reserve University

Biomedical-engineering educators take five minutes to demonstrate their most effective classroom activities, such as icebreakers, hands-on activities, team-building, classroom demonstrations, technology tips, or pedagogical strategies.

T205 - Donald R. Woods Lectureship Award for Lifetime Achievement in Chemical Engineering Pedagogy

9:15 A.M. - 10:45 A.M., C124, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

T206 - Civil Engineering Division (CIVIL) Technical Session - Instructional Technology 1

9:15 A.M. - 10:45 A.M., A105, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Gary Jordan, United States Military Academy; Manish Roy, University of Connecticut

A Flipped Classroom Setting Trial in GIS Course

Dr. Namita Shrestha, Rose-Hulman Institute of Technology

Dr. Timothy Chow, Rose-Hulman Institute of Technology

A Methodology to Replicate Cutting-Edge Surveying Equipment Using Cost-Sensitive Devices to Promote Innovative Mapping Solutions in Undergraduate Engineering

Dr. Salvatore Marsico, Penn State University

Dr. Henrique Oliveira, University of Campinas

Mrs. Débora Paula Simões, University of Campinas

[Case Study] "Any Given Classroom": Seemingly Small Deliberate Moves (48 Inches) Gets You Big Space Gains (1,100 square feet)

Major Joseph Speight P.E., United States Military Academy

Major Brett Rocha P.E., United States Military Academy

Dr. Brock E. Barry P.E., United States Military Academy

Infrastructure Live! A Hands-On Electric Power Classroom Experience Requiring a Single Rolling Chalkboard

Major Kevin Taylor Scruggs, United States Military Academy

Mr. Scott M. Katalenich P.E., United States Military Academy

Dr. James Ledlie Klosky PE, United States Military Academy

Student Perceptions of Artificial Intelligence and Relevance for Professional Preparation in Civil Engineering

Dr. Mary Kay Camarillo P.E., University of the Pacific

Dr. Luke S. Lee P.E., University of the Pacific

Ciara Swan MFA-W, University of the Pacific

T207 - College Industry Partnership Division Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: College Industry Partnerships Division (CIP)

Moderator: Shannon O'Donnell, Siemens Digital Industries Software

All are welcome to attend the College Industry Partnership Division (CIPD) business meeting.

T208 - Simulations and Virtual Learning

9:15 A.M. - 10:45 A.M., B117, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Ronald Hayne, The Citadel

The papers in this session focus on augmented and virtual reality, computer simulations, and virtual labs.

An Update Regarding the Pedagogical Efficiency of Continuous vs. Discrete User Interactions with Computer Simulations

Dr. David M. Feinauer P.E., Virginia Military Institute

Prof. James C. Squire P.E., Virginia Military Institute

Prof. Gerald Sullivan, Virginia Military Institute

Immersive Virtual Labs for Enhancing In-Person and Online Education

Ms. Yiyang Li, Old Dominion University

Prof. Yuzhong Shen, Old Dominion University

Charles I. Sukenik, Old Dominion University

Innovative Next-Generation Virtual Reality-based Immersive Approaches for Learning Engineering Concepts

J. Cecil, Oklahoma State University

Integrating Theory and Practice: A CFD Education Approach

Dr. Mehmet Nasir Sarimurat, Syracuse University

ThermoVR: Using Virtual Reality and Playful Simulation to Teach and Assess Introductory Thermodynamics Concepts

David J. Gagnon, Field Day Lab @ UW-Madison

Prof. John M. Pfotenhauer, University of Wisconsin, Madison

Arganthael Berson, University of Wisconsin, Madison

Luke Swanson, University of Wisconsin, Madison

Natural Human-Computer Interface Based on Gesture Recognition with YOLO to Enhance Virtual Lab Users' Immersive Feeling

Momina Liaqat Ali

Dr. Zhou Zhang, Middle Tennessee State University

T208B - Programming Education 1

9:15 A.M. - 10:45 A.M., D137, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Timothy James, Purdue Engineering Education

The first of two programming education sessions, the papers in this session focus on topics related to teaching students how to program.

Assessing the Effectiveness of Open-ended Engineering Design Projects in a First-Year Engineering Programming Course for Improving Students' Problem-Solving Styles

Dr. John Alexander Mendoza-Garcia, University of Florida

A Powerful Labs Environment for Computer Science Courses

Dr. Chi Yan Daniel Leung, zyBooks, A Wiley Brand

Joseph Mazzone, zyBooks, A Wiley Brand

Ms. Efthymia Kazakou, zyBooks, A Wiley Brand

Chelsea Gordon, zyBooks, A Wiley Brand

Dr. Alex Daniel Edgcomb, zyBooks, A Wiley Brand

Dr. Yamuna Rajasekhar, zyBooks, A Wiley Brand

Survey of Tools and Settings for Introductory C Programming

Sunjae Park, Wentworth Institute of Technology

Unlocking the Secrets of Student Success in Low-Code Platforms: An In-Depth Comparative Analysis

Prof. Mariza Tsakalerou, Nazarbayev University

Michalis N. Xenos, University of Patras

Ms. Semira Maria Evangelou, University of Patras

Visual Studio Code in Introductory Computer Science Course: An Experience Report

Dr. Jialiang Tan, Lehigh University

Dr. Yu Chen, Independent Researcher

Dr. Shuyin Jiao, North Carolina State University

T211 - Cooperative and Experiential Education Division (CEED) Technical Session 4

9:15 A.M. - 10:45 A.M., D133, OREGON CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Professional Competency Development through Reflection (Work-in-Progress)

Laurie Sutch, University of Michigan

Exploring the Relationship Between Student Characteristics and their Transformative Experience from Short-Term Study Abroad Programs

Sukeerti Shandliya, University of Cincinnati

Dr. Cedrick Kwuimy, University of Cincinnati

Dr. So Yoon Yoon, University of Cincinnati

Capstone Projects for Self-Efficacy, Skills, and Successful Careers

Dr. Kimberly LeChasseur, Worcester Polytechnic Institute

Dr. Fiona Levey, Worcester Polytechnic Institute

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

Alireza Ebadi, Worcester Polytechnic Institute

Dr. John McNeill, Worcester Polytechnic Institute

Micro-Credentials for Research and Service Learning to Enhance the Engineering Student Experience

Dr. Robert J. Rabb P.E., Pennsylvania State University

Mrs. Erin A. Hostetler, Pennsylvania State University

Dr. Patrick Joseph Tunno, Pennsylvania State University

Dr. Christine B. Masters, Pennsylvania State University

T2110 - Campus Representative Business Meeting

9:15 A.M. - 10:45 A.M., REGENCY BALLROOM A , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Campus Representatives

Annual business meeting of ASEE's campus representatives

T213 - Design in Engineering Education Division (DEED) - Best in DEED

9:15 A.M. - 10:45 A.M., E148, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Beshoy Morkos, University of Georgia

The Influence of Personal Experience and Identity on Design: Teaching Positionality to Engineers

Emily Lawson-Bulten, University of Illinois at Urbana - Champaign

Dr. Samantha Lindgren, University of Illinois at Urbana - Champaign

Dr. Ann-Perry Witmer P.E., University of Illinois at Urbana - Champaign

An Engineering and Nursing Collaborative: Incorporating the Concept of Empathy into First-Year Engineering Design to Increase Student Engagement

Dr. Gail Baura, Loyola University Chicago

Ms. Francisca Fils-Aime, Loyola University, Chicago

Dr. Nancy Lynn Raschke Deichstetter DNP, RN, CEN, CHSE, Loyola University, Chicago

Dr. Joanne O'Grady Dunderdale DNP, RN, Loyola University, Chicago

Toward an Integrated Framework of Empathy for Users among Engineering Student Designers

Dr. Nicholas D. Fila, Iowa State University of Science and Technology

Dr. Justin L. Hess, Purdue University

Ms. Elizabeth Sanders, Purdue University

Dr. Corey T. Schimpf, University at Buffalo, The State University of New York

Designing with AI: Integrating Image-Generative AI into Conceptual Design in a CAD Class

Dr. Wangda Zhu, University of Florida

Rui Guo, University of Florida

Yuanzhi Wang, Cornell University

Wanli Xing, University of Florida

Prof. Eddy Man Kim, Cornell University

Chenglu Li, The University of Utah

What Happens When Biomedical Engineering Students and Product Design Students Design Medical Devices Together? Evaluating a New Collaborative Course

Dr. Kristin A. Bartlett, University of Kentucky

William Davis Ferriell, University of Kentucky

Jonathan Mills, University of Kentucky

T214A - Research for All: Be a Better Mentor for Your Undergraduate Research Assistants

9:15 A.M. - 10:45 A.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsors: Educational Research and Methods Division (ERM); Faculty Development Division (FDD); Entrepreneurship & Engineering Innovation Division (ENT); Graduate Studies Division (GSD)

This session will provide research-based templates and strategies for mentoring STEM undergraduate research students.

T214B - Educational Research and Methods Division (ERM) Technical Session 7

9:15 A.M. - 10:45 A.M., E147, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Adrian Gentry, Purdue University at West Lafayette (COE)

Evaluation of LLMs and Other Machine Learning Methods in the Analysis of Qualitative Survey Responses for Accessible Engineering Education Research

Xiuhao Ding, University of Illinois at Urbana - Champaign

Meghana Gopannagari, University of Illinois at Urbana - Champaign

Kang Sun, University of Illinois at Urbana - Champaign

Alan Tao, University of Illinois at Urbana - Champaign

Delu Louis Zhao

Sujit Varadhan, University of Illinois at Urbana - Champaign

Bobbi Lee Battleson Hardy, University of Illinois at Urbana - Champaign

David Dalpiaz, University of Illinois at Urbana - Champaign

Dr. Chrysafis Vogiatzis, University of Illinois at Urbana - Champaign

Prof. Lawrence Angrave, University of Illinois at Urbana - Champaign

Dr. Hongye Liu, University of Illinois at Urbana - Champaign

Evaluation of the Effect of Anonymous Grading on Student Performance on High-Stakes Assessments

Dr. Neha B. Raikar, University of Maryland, Baltimore County

Dr. Nilanjan Banerjee

Factors Influencing Engineering Students' Perceptions on the Use of ChatGPT

Mr. Mohammad Faraz Sajawal, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Predicting Student Performance Using Discussion Forums' Participation Data

Mac Joseph Gray, Duke University

Dr. Rabih Younes, Duke University

Predictors of Student Academic Success in an Upper-Level Microelectronic Circuits Course

Dr. Jacqueline Rohde, Georgia Institute of Technology

Sai Paresh Karyekar, Georgia Institute of Technology

Liangliang Chen, Georgia Institute of Technology

Yiming Guo, Georgia Institute of Technology

Dr. Ying Zhang, Georgia Institute of Technology

Undergraduate Research Summer Residency Program

Dr. Djedjiga Belfadel, Fairfield University

T214C - Educational Research and Methods Division (ERM) Technical Session 8

9:15 A.M. - 10:45 A.M., B113, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Yucheng Liu, South Dakota State University

Analyzing Grading Criteria for Linear Graphs: Implications for Advanced Mathematical Learning

Dr. Xiaojin Ye, State University of New York, Farmingdale

Prof. Carlos William Castillo-Garsow, Eastern Washington University

Assessing Critical Thinking in Computer and Software Engineering Courses

Dr. Mohammad Shokrolah Shirazi, Marian University

Hung-fu Chang

Defining Measurement Constructs for Assessing Learning in Makerspaces

Mr. Leonardo Pollettini Marcos, Purdue University

Dr. Julie S. Linsey, Georgia Institute of Technology

Dr. Melissa Wood Aleman, James Madison University

Dr. Robert L. Nagel, Carthage College

Dr. Kerrie A. Douglas, Purdue University

Prof. Eric Holloway, Purdue University

Pass-Fail Grading of Technical Writing in a Material Science Laboratory

Prof. John R. Rogers, Benedictine College

Taylor Goring

Joel Michael Iwanski

Quantifying Spatial Skills across STEM Disciplines: A Systematized Literature Review of Assessment Tools

Daniel Kane, Utah State University

Dr. Wade H. Goodridge, Utah State University

Dr. Angela Minichiello, Utah State University

The Justification Effect on Two-Tier Multiple-Choice Exams

Dr. Pablo Frank Bolton, Smith College

Liberty Rose Lehr, Smith College

Rahul Simha, The George Washington University

Michelle Lawson, Smith College

T214D - Educational Research and Methods Division (ERM) Technical Session 9

9:15 A.M. - 10:45 A.M., B114, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Encouraging Teamwork after the Pandemic

Prof. Catalina Cortazar, Pontificia Universidad Católica de Chile

Gabriel Astudillo, Pontificia Universidad Católica de Chile

Toward Understanding Impacts of E-Campus Course Synchronicity on STEM Learners

Christopher A. Sanchez, Oregon State University

Brian John Zhang, Oregon State University

Prof. Naomi T. Fitter, Oregon State University

Unpacking Student Workload through Elicitation Techniques: Perspectives from Engineering Faculty and Students

Dr. Isabel Hilliger, Pontificia Universidad Católica de Chile

Prof. Marietta Castro, Universidad San Sebastián

Ema Huerta Torres, Universidad Católica de Norte

Mr. Erick Vaclav Svec, Pontificia Universidad Católica de Chile

Dr. Jorge Baier, Pontificia Universidad Católica de Chile

Visual Voices in Computing: Exploring Photovoice in Computer Science Education for Underrepresented Groups

Miss Disha Patel, Florida International University

Mrs. Monique S. Ross, The Ohio State University

WIP: Evaluation of the Third Design Cycle of the Wellbeing Teaching Assistant (WTA): Understanding What Type of Cases are Served Through a Categorization Analysis

Mr. Erick Vaclav Svec, Pontificia Universidad Católica de Chile

Gabriel Astudillo, Pontificia Universidad Católica de Chile

Mr. Luis Eduardo Vargas-Vidal, Pontificia Universidad Católica de Chile

Carolina López, Pontificia Universidad Católica de Chile

Mrs. Ximena Hidalgo

Miss Isabel Hilliger, Pontificia Universidad Católica de Chile

Dr. Jorge A. Baier, Pontificia Universidad Católica de Chile

T214E - ERM Business Meeting and ACCAR

9:15 A.M. - 10:45 A.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

The ERM Business meeting will be an opportunity to discuss new initiatives and regular business in the division. Additionally, we will apportion a significant amount of time to honor division awardees with the Annual Community Celebration and Awards Reception (ACCAR). Please mark your calendars to network and celebrate our awardees.

T215B - Electrical and Computer Engineering Division Business Meeting

9:15 A.M. - 10:45 A.M., COLUMBIA 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Electrical and Computer Engineering Division (ECE)

Business Meeting

T216 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 2

9:15 A.M. - 10:45 A.M., D140, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Matt Aldeman, Illinois State University; Anveeksh Koneru, Excelsior College

Design and Construction of Solar Powered Automated Chicken Coop

Dr. Reg Recayi Pecen, Sam Houston State University

Paul Aden Paschal, Sam Houston State University

Development of an Interactive, Game-Based Nuclear Science Museum Exhibit on Probabilistic Risk Assessment

Camille S. Levine, University of Maryland

Samantha Ellen Wismer, University of Maryland

Ryan Painter

Katrina Groth, University of Maryland

Interdisciplinary Project (ME/EE) for Students in Shop to Increase Conductivity of Aluminum Stock

Giselle S. Veach, University of Idaho

Dr. Herbert L. Hess, University of Idaho

Project-Based and Active Collaborative Learning to Teach Students About Renewable and Conventional Energy Systems

Dr. Jason Andrew Roney, University of Denver

T2195 - DSA Technical Session 3

9:15 A.M. - 10:45 A.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Karl Schubert, University of Arkansas; Ben Radhakrishnan, National University

Enhancing Engineering Education

Innovating Engineering Education Analysis through Creative Data Visualization

Aidan Kenny, Northeastern University

Dr. Andrew L. Gillen, Northeastern University

Extra Credit Analysis of Undergraduate Engineering Students

Tushar Ojha, University of New Mexico

Don Hush, University of New Mexico

Credit-Hour Analysis of Undergraduate Students Using Sequence Data

Tushar Ojha, University of New Mexico

Don Hush, University of New Mexico

Optimizing Transfer Pathways in Higher Education

Dr. Yiming Zhang, The University of Arizona

Prof. Gregory L. Heileman, The University of Arizona

Ahmad Slim, The University of Arizona

Husain Al Yusuf, The University of Arizona

T220B - Using Technology in Engineering Ethics Education

9:15 A.M. - 10:45 A.M., G129, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Bailey McOwen, Virginia Polytechnic Institute and State University; Madeline Polmear, Vrije Universiteit Brussel

Using technology in engineering ethics education

A Student-Led Ethics Deep Dive, Discussion, and Content-Generation Ethics Assignment in Computer Science & Engineering Capstone

Dr. Tracy Anne Hammond, Texas A&M University

Prof. Pauline Wade, Texas A&M University

Dr. Shawna Thomas, Texas A&M University

Hillary E. Merzdorf, Texas A&M University

Crowdsourcing a Practical Toolkit for Embedding Ethics in the Engineering Curriculum (Work in Progress Paper)

Dr. Sarah Junaid, Aston University

Wendy Irene Attwell

Sarah Hitt

Defining the Essence of the Self in Exploring the Notion of Altruism and Establishing Trust in Human | Robot Interaction (HRI)

Dr. Hortense Gerardo, University of California, San Diego

Dr. Brainerd Prince, Plaksha University

Mr. B. Lallian Ngura, Centre for Thinking Language and Communication (CTLC), Plaksha University

Ethical Use of Generative AI in Engineering: Assessing Students and Preventing Them from Cheating Themselves

Dr. Ronald P. Uhlig, National University

Dr. Shatha Jawad, National University

Phillip Zamora, National University

Elizabeth Niven, National University

T221 - Engineering Libraries Division Business Meeting

9:15 A.M. - 10:45 A.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Lisa Ngo, University of California, Berkeley

The Engineering Libraries Division (ELD) of the American Society for Engineering Education (ASEE) invites all members, including newcomers, to its annual business meeting.

This gathering will feature informative presentations from division committees, a report from the PIC chair, and an awards presentation. There will also be plenty of time to mingle and chat with other ELD members.

Free ticketed event

T222 - Engineering Management Division (EMD) Technical Session 2

9:15 A.M. - 10:45 A.M., C120, OREGON CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Dale Masel, The Ohio State University

AI Tools for Engineering Education

Navigating the AI Revolution in Engineering Management Education: Strategies for Detection, Integrity, and Pedagogical Enhancement

Dr. Raymond L. Smith III, East Carolina University

Dr. Henry Lester, University of Dayton

Investigating the Industry Perceptions and Use of AI Tools in Project Management: Implications for Educating Future Engineers

Sakhi Aggrawal, Purdue University

Dr. Paul J. Thomas

Iterative Learning: Using AI-Bots in Negotiation Training

Dr. Renee Rottner, University of California, Santa Barbara

T223A - Experiential Learning in ET Programs I

9:15 A.M. - 10:45 A.M., A107, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Orlando Ayala, Old Dominion University; Carmen Cioc, The University of Toledo

Implementation of a Project-Based Learning Approach in an Upper Level Course in Engineering Technology

Dr. Billy Gray, Tarleton State University

Dr. Gloria M. Fragoso-Diaz, Tarleton State University

Olugbenro Ogunrinde, Tarleton State University

Tyler Rider, Tarleton State University

Four Decades of Distance Learning Instruction in an Electrical Engineering Technology Program

Dr. Otilia Popescu, Old Dominion University

Dr. Isaac L. Flory IV, Old Dominion University

Prof. John R. Hackworth, Old Dominion University

Dr. Steve C. Hsiung, Old Dominion University

Dr. Murat Kuzlu, Old Dominion University

Integration of Simulation-Based Learning in Undergraduate Engineering and Technology Courses

Fardeen Q. Mazumder, University of Michigan, Flint

Mohammad Rayhan Sheikh, University of Michigan

Mohammed Shoeb Hossain, University of Michigan

Utilizing Micro-Credentials to Infuse Renewable Energy Concepts into Engineering Technology Curriculum

Dr. Khosro Shirvani, State University of New York, Farmingdale

Prof. Marjaneh Issapour, State University of New York, Farmingdale

Zachary Ross Licht, State University of New York, Farmingdale

PLC Multi-Robot Integration via Ethernet for Human Operated Quality Sampling

Jeevan Shridhar Devagiri, Michigan Technological University

Dr. Paniz Khanmohammadi Hazaveh, Michigan Technological University

Dr. Nathir Rawashdeh, Michigan Technological University

Sai Revanth Reddy Dudipala, Michigan Technological University

Pratik Mohan Deshmukh, Michigan Technological University

Aditya Prasad Karmarkar, Michigan Technological University

T223B - JET Board Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 10, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderator: Jyhwen Wang, Texas A&M University

T223C - ET National Forum

9:15 A.M. - 10:45 A.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

T224 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 4

9:15 A.M. - 10:45 A.M., D136, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Thomas Omwando, Simpson University; Karcher Morris, University of California, San Diego

Integrating Entrepreneurship into Engineering Curriculum

A Multi-Tool Approach in Integrating Entrepreneurship into Engineering Technology Education

Dr. Dalya Ismael, Old Dominion University

Relationship Among Entrepreneurial Intention and Entrepreneurial Competency Development: A Study on Perceptions Through Engineering Students.

Prof. Claudia Paz Gwynn, Universidad Andres Bello, Santiago, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Santiago, Chile

Implementing Entrepreneurial Minded Learning in a First-Year Seminar Course

Dr. Simon Thomas Ghanat P.E., The Citadel

Dr. Deirdre D. Ragan, The Citadel

Design Your Own Entrepreneurial Roadmap: A Four-Year Cohort Fellowship Model to Develop the Next Generation of Innovators

Dr. Tobias Rossmann, Lafayette College

Martin Johnson

An Assessment of Students' Perceptions in Curriculum Development Integrating Entrepreneurship and STEAM with Designing Green (Bio-inspired) Roofs

Dr. Nadia Al-Aubaidy, Norwich University

T226B - ELOS Technical Session 4 - Design, Participation, and Projects

9:15 A.M. - 10:45 A.M., G-130, OREGON CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Robby Sanders, Tennessee Technological University

A Study of the Efficiency of Toroidal Propeller Designs

Andrew Alm, Oral Roberts University

William Parker Garrison, Oral Roberts University

Victor R. C. Gomes, Oral Roberts University

Caleb H. Harris, Oral Roberts University

Gabriel Troy Shrauger, Oral Roberts University

Caleb Whitacre, Oral Roberts University

Dr. John E. Matsson, Oral Roberts University

Encouraging Student Participation in Developing Custom Built Lab Modules in Undergraduate Engineering and Science Course

Dr. Anu Osta, Rowan University

Project-Based Learning in a Multidisciplinary Two-Semester First-Year Experience

Dr. Mohammad Heshmati, Mississippi State University

Dr. Bill B. Elmore, Mississippi State University

An Adaptive Scaffolding Approach Based on Team Dynamics in an Integrated Masters and Undergraduate Bioengineering Capstone Design Course

Eliot Bethke, University of Illinois at Urbana - Champaign

Dr. Ali Ansari, University of Illinois at Urbana - Champaign

Dr. Joe Bradley, University of Illinois at Urbana - Champaign

Dr. Jennifer R. Amos, University of Illinois at Urbana - Champaign

Dr. Holly M. Golecki, University of Illinois at Urbana - Champaign

A Path to Diversity, Equity, and Inclusion in Remote Laboratories

Dr. Rania Hussein, University of Washington

Mr. Marcos Jose Inonan Moran, University of Washington

T227A - Special Session - K-20 Engineering Pathways: Designing a Student's Journey to a Successful Degree

9:15 A.M. - 10:45 A.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: First-Year Programs Division (FYP); Pre-College Engineering Education Division (PCEE); Two-Year College Division (TYCD)

Moderators: Jennifer Love, Northeastern University; Ashish Borgaonkar, New Jersey Institute of Technology; Jessica Kuczenski, Santa Clara University; Carl Whitesel, South Mountain Community College

Speakers: Dr. Jenna P. Carpenter, Campbell University; Dr. Stacy S. Klein-Gardner, Vanderbilt University; Dr. Carl Whitesel, South Mountain Community College

This collaborative roundtable session invites faculty and administrators from community colleges, K-12 communities, as well as 4-year private and 4-year public institutions and industry to discuss various scenarios and barriers that students may face as they begin their journeys toward engineering and graduate degrees. ASEE member panelists, including those from the First-Year Programs, Two-Year College, and Pre-College Divisions will spotlight their expertise and recent reports, publications, or initiatives, and engage attendees in roundtable conversations to identify and share student-centered strategies that promote student success at any point along a student's K-20 engineering pathway.

T227B - Special Session - Roundtable: Curricular Trends in First-Year Engineering

9:15 A.M. - 10:45 A.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: J. Hylton, Ohio Northern University; Kaitlin Mallouk, Rowan University; Krista Kecskemety, The Ohio State University; Jack Bringardner, Colorado School of Mines

In this roundtable, first-year leaders from different institution types and sizes will lead a conversation about current curricular trends in first-year engineering. Body of Knowledge frameworks for FYE content will be presented, with discussion around comparing and contrasting frameworks, identification of gaps, and mapping to attendees' own FY curricula. Discussion will also be led around the alignment (or lack thereof) of curricula between institutions and the impacts that has on student pathways and the ability of the community to share and deploy best practices across programs. Attendees are encouraged to come prepared to discuss the topics covered in their own first-year program.

T227C - Generative AI and First-Year Students: Shaping Tomorrow's Engineers

9:15 A.M. - 10:45 A.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Kevin Calabro, University of Maryland, College Park; Catherine Hamel, University of Maryland, College Park

Speakers: Dr. Ethan E. Danahy, Tufts University; Forrest Milner, University of Maryland College Park; Dr. Steffen Peuker, California Polytechnic State University, San Luis Obispo; Dr. David Tomblin, University of Maryland, College Park; Beth Blumenstein

Join us for a stimulating discussion sponsored by the First-Year Programs Division (FYP) titled "Generative AI and First Year Students: Shaping Tomorrow's Engineers." In this 90-minute moderated roundtable, our panel of experts—comprising first-year educators, undergraduate engineering students, engineering ethicists, engineering education researchers, K-12 state department of education officials, and industry representatives—will examine the

potential impact of Generative AI on engineering curricula and pedagogy. Discover the ethical dilemmas, potential benefits, and best practices for incorporating AI into early engineering education. During this interactive session, you will get to learn from and engage with thought leaders with a variety of perspectives on this topic, thus empowering you to contribute meaningfully to the ongoing dialogue and decisions surrounding the integration of this transformative technology into engineering education contexts.

T228 - Graduate Studies Division (GSD) Technical Session 4: Interdisciplinary Graduate Education

9:15 A.M. - 10:45 A.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Understanding Ecosystems of Interdisciplinary Graduate Education through an Ecological Systems Approach

Margaret Webb, Virginia Tech

Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

Rapid Ethnographic Assessment of Workshops on Transdisciplinary Intercultural Competence, Community Engaged Practice, and Mixed Research Methods

Ari Sherris, Texas A&M University, Kingsville

Christine Reiser Robbins, Texas A&M University, Kingsville

Dr. Hua Li, Texas A&M University, Kingsville

Jianhong Ren, Texas A&M University, Kingsville

Dr. David Ramirez

Prof. Kai Jin, Texas A&M University, Kingsville

Exploring Interdisciplinary Identity Formation in Graduate Students

Ms. Susan Wainscott, University of Nevada, Las Vegas

Dr. Dustin B. Thoman, San Diego State University

Prof. Satchi Venkataraman, San Diego State University

Influence of Training Mode on Professional Identity of Engineering Ph.D. Students: The Moderating Role of Disciplinary Differences

Dr. Lina Wei, Peking University

Zhao Yue

T229 - Industrial Engineering Division (IND) Technical Session 2

9:15 A.M. - 10:45 A.M., E142, OREGON CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderators: Farid Breidi, Purdue University at West Lafayette (PPI); Corey Kiassat, PE, Quinnipiac University

Incorporating boot camps, experiment-centric pedagogy, poetry, and projects in accelerating learning in engineering education

Fostering Curiosity among Industrial Engineering Undergraduates through Experiment-Centric Pedagogy

Mr. Pelumi Olaitan Abiodun, Morgan State University

Vandana Pandey, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Dr. Seong Lee, Morgan State University

Putting the Project Back in Project Management Courses

Dr. Nina Miville, University of Miami

Empowering Quality Excellence: A 10-Day Quality Engineering Boot Camp for Accelerated Learning

Jakia Sultana, University of Texas, El Paso

Dr. Md Fashiar Rahman, University of Texas, El Paso

Christopher Colaw, Lockheed Martin

Prof. Tzu-liang Bill Tseng, University of Texas, El Paso

WIP: Rewriting Capstone: The Unexpected Solution to Our Assessment Problem

Dr. Janice Mejía, Northwestern University

Katherine Scharfenberg, Northwestern University

Dr. Jill Hardin Wilson, Northwestern University

Poetry Writing as a Creative Task to Enhance Student Learning

Emma S. Atherton, University of Florida

Prof. Elif Akcali, University of Florida

T230 - Computing and Information Technology Division (CIT) Technical Session 4

9:15 A.M. - 10:45 A.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Reza Sanati-Mehrizy, Utah Valley University; Afsaneh Minaie, Utah Valley University

Leveraging Open Source Tools to Teach Quantum Computing Foundations: Bridging the Future Workforce Gap in the Quantum Era

Dr. Radana Dvorak, Saint Martin's University

Farzin Bahadori, Saint Martin's University

Linking First-year Computing Courses to Engage Commuter Students

Dr. Lily Liang, University of the District of Columbia

Dr. Briana Lowe Wellman, University of the District of Columbia

Rui Kang

LoRaWAN Solution for Automated Water Drainage of Agricultural Fields

Cris Robert Exum

Dr. Ciprian Popoviciu, East Carolina University

Mr. Colby Lee Sawyer, East Carolina University

On the Portability and Robustness of Early Student Performance Predictions

Dr. Abdulmalek Al-Gahmi, Weber State University

Algorithmic Thinking: Why Learning Cannot Be Measured By Code-Correctness in a CS Classroom

Ms. Alejandra Noemi Vasquez, Tufts University

Trevion S. Henderson, Tufts University

Mr. David Zabner, Tufts University

T231 - Instrumentation Division Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Instrumentation Division (INST)

Moderator: Herbert Hess, University of Idaho

Join colleagues to discuss the division's activities of the past year and plans for the upcoming year. Elections are held this year with all offices open for nomination. All who are interested in Instrumentation as it applies to engineering education are welcome to join the discussion.

T233 - Bart's Big Plan: Engaging High Schoolers in Engineering Adventures ... Ay Caramba!

9:15 A.M. - 10:45 A.M., E146, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Pamela Lottero-Perdue, Towson University

This session will focus on high school student engagement in engineering design and fundamentals.

High School Computing Education: The Landscape of Equity-Enabling Research (Fundamental)

Dr. Julie M. Smith, CSEdResearch.org

Monica McGill, Institute for Advanced Engineering

The Roles of Curriculum Designers and After School STEM Teachers as Environmental Features for High School Students' STEM Career Access (Fundamental)

Allison Antink-Meyer, Illinois State University

Jeritt Williams, Illinois State University

Dr. Matthew Aldeman, Illinois State University

Dr. Jin Ho Jo, Illinois State University

High School Students' Perspectives on Mathematical Modeling in the Engineering Design Process (RTP)

Jialing Wu, Vanderbilt University

Mr. Nicolas Leger, Florida International University

Dr. Stacy S. Klein-Gardner, Vanderbilt University

Increasing Authenticity in Pre-College Software Engineering Education through Role-Play

Dr. Per G. Norstrom

Charlotta Nordlöf, Linkoping University

Konrad J. Schönborn

Prof. Jonas Hallström, Linkoping University

T233B - Homer's Handy Homework: STEM Adventures from Sofa to School, Mmm... STEM

9:15 A.M. - 10:45 A.M., E143, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Hoda Ehsan, The Hill School

Supporting engineering education opportunities for families

STEM Interest as an Indicator of Elementary and Middle School Aged Youth's Decision to Participate in Out-of-School Informal STEM Education

Dr. Turhan K. Carroll, University of Georgia

Dr. Jessica R. Hoehn, University of Colorado Boulder

Prof. Noah D. Finkelstein, University of Colorado Boulder

The Conception of Epistemic Practices of Engineering in the Home Environment (Fundamental)

Amber Simpson, Binghamton University

Ms. Sawsan Werfelli, State University of New York at Binghamton

From Science Fair to STEAM Night

Dr. Shannon L. Isovitsch Parks P.E., University of Pittsburgh at Johnstown

Mrs. Larissa Yates, Buffalo Elementary Parent Teacher Organization

Emily Geist

Sara Ruffner

T234 - Invited Panel of Speakers: Labor and Engineering

9:15 A.M. - 10:45 A.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

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

Moderator: Joseph Valle, Purdue University at West Lafayette (COE)

Speakers: JT Yu; Andrea Haverkamp; Kevin Christensen

This session brings together a panel of union and cooperative organizers from the Portland area to share their experiences, give brief overviews of labor unions and worker cooperatives as institutions workers build for social change and discuss paths forward for the future of engineering education. An objective of this panel is to seed a community of practice focused on reorienting engineering education towards solidaristic- and care-based economies.

T234B - Writing and Technical Communications

9:15 A.M. - 10:45 A.M., A106, OREGON CONVENTION CENTER

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

Moderator: Jacqueline Mohalley Snedeker, Georgia Institute of Technology

Liberal Education/Engineering & Society Division (LEES) Paper Session

(Re)visions: Approaches to Teaching Technical Communications and Professional Development in a Multidisciplinary Engineering Capstone Course

Lynn Hall, The Ohio State University

Mr. Bob Rhoads P.E., The Ohio State University

Tyler James Stump, The Ohio State University

Initial Investigations into the Link Between Spatial and Technical Communication Skills

Mr. John William Lynch, University of Cincinnati

Dr. Sheryl A. Sorby, University of Cincinnati

Prof. Teri J. Murphy, University of Cincinnati

Dr. Betsy M. Aller, Western Michigan University

Work in Progress: Scaffolding Revision with Rubrics, Peer Review, and Reflection in a Technical Communication Course

Dr. Dianne Grayce Hendricks, University of California, Santa Cruz

William Charles Sobolewski, University of California, Santa Cruz

A Write Way to Teach Statics: The Influence of Including Regular Writing Assignments in Promoting Student Success in Learning Engineering Statics

Mr. Lance R. Curtis, University of Maryland, College Park

Small Shifts: New Methods for Improving Communication Experiences for Women in Early Engineering Courses

Dr. Jonathan M. Adams, Embry-Riddle Aeronautical University, Prescott

Ashley Rea, Embry-Riddle Aeronautical University, Prescott

Brian Roth, Embry-Riddle Aeronautical University, Prescott

Katrina Marie Robertson, Embry-Riddle Aeronautical

University, Prescott

Trey Thomas Talko, Embry-Riddle Aeronautical University, Prescott

T235 - Virtual and Augmented Reality Application in Manufacturing Education

9:15 A.M. - 10:45 A.M., A109, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Rui Liu, Rochester Institute of Technology (COE); Hugh Jack, Western Carolina University

Adoption of Digital Twin and Artificial Intelligence in Metal Additive Manufacturing: Current Status and Vision for Future

Dr. Devi Kalla, Metropolitan State University of Denver

Teaching Manufacturing Assembly Processes Using Immersive Mixed Reality

Ms. Israa Azzam, Purdue University

Dr. Farid Breidi, Purdue University at West Lafayette (PPI)

Dr. Faisal Aqlan, University of Louisville

Virtual Reality Robotics with Internet-of-Things for Student Learning on Industrial Robotics and Automation in Manufacturing

Dr. Richard Chiou, Drexel University

Prof. Tzu-liang Bill Tseng, University of Texas at El Paso

Dr. Md Fashiar Rahman, The University of Texas at El Paso

Virtual Reality Wind Turbine for Learning Green Energy Manufacturing

Dr. Richard Chiou, Drexel University

Isher Singh

Arjuna Karthikeyan Senthilvel Kavitha, Drexel University

Prof. Tzu-liang Bill Tseng, University of Texas at El Paso

Dr. Md Fashiar Rahman, University of Texas at El Paso

Nijanthan Vasudevan, Drexel University

T236 - Materials Division (MATS)

9:15 A.M. - 10:45 A.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Materials Division (MATS)

T237 - Mathematics Division Business Meeting

9:15 A.M. - 10:45 A.M., COLUMBIA 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Mathematics Division (MATH)

Moderators: Galen Papkov, Florida Gulf Coast University; James Lewis, University of Louisville

T238A - MECH - Technical Session 3: Advancements in Teaching Mechanical Engineering

9:15 A.M. - 10:45 A.M., C121, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Sudeshna Pal, University of Central Florida; David Mikesell, Ohio Northern University

This session highlights innovative approaches to teaching mechanical engineering. Topics include lessons from ancient machines, a framework for CAD design projects, the role of CFD in fluid dynamics courses, sustainability content in mechanical engineering, and using video creation to foster an entrepreneurial mindset in students.

Ancient Machines: What Engineering Students Can Learn from Them?

Dr. Arif Sirinterlikci Ph.D., CMfgE, Robert Morris University

Ronald Saus, Robert Morris University

A Framework for CAD Design Projects: Combining Scaffolded Milestones, Design Review, and Reflection

Dr. Jamie Szwalek, The University of Illinois at Chicago

Christopher Carducci, The University of Illinois at Chicago

Importance of CFD in undergraduate-level fluid dynamics course

Dr. Namhee Kim, Western Carolina University

Mechanical Engineering Sustainability Curricular Content and Bachelor's Degrees Awarded to Women

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Ms. Joan Tisdale, University of Colorado Boulder

Using Video Creation to Develop the Entrepreneurial Mindset of Engineering Students

Dr. Mohammad Abu Rafe Biswas, The University of Texas at Tyler

Dr. Prabha Sundaravadivel, The University of Texas at Tyler

Dr. Aaditya Khanal, The University of Texas at Tyler

T238B - MECH - Technical Session 4: Innovation in Engineering Education Methods

9:15 A.M. - 10:45 A.M., C122, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Maryam Younessi Sinaki, Cleveland State University; David Copp, University of California, Irvine

This session presents innovative methods in engineering education, featuring AI case studies in thermodynamics, mastery-based CAD activities, integrating history lessons, analyzing student preferences for equation sheets, and enhancing mechanical vibration education with virtual labs.

Using Artificial Intelligence Case Studies in a Thermodynamics Course

Dr. Karen Supan, Norwich University

Implementing Mastery-Based CAD Activities into an Introduction-to-Engineering Design Course to Develop Entrepreneurial Mindset

Dr. Breigh Nonte Roszelle, University of Denver

Incorporating History Lessons into a Second-Year Mechanical Engineering Seminar

Prof. Rachel Vitali, The University of Iowa

Student Experiences and Preferences for Equation Sheets

Dr. Diane L. Peters P.E., Kettering University

Enhancing Mechanical Vibration Education through Virtual Labs: A Focus on Rotor Balancing

Dr. Carmen Maria Muller-Karger, Florida International University

Dr. Luis U. Medina Uzcategui, Universidad Austral de Chile

T239 - Assessing Conceptual Thinking about Engineering Mechanics

9:15 A.M. - 10:45 A.M., B116, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Hadas Ritz, Cornell University; Jacob Moore, Pennsylvania State University, Mont Alto

Analysis of Student Understanding of Force Using the Dynamics Concept Inventory, Think-Alouds and Confusion Matrices

Dr. Julian Ly Davis, University of Southern Indiana

Dr. Andrew Jason Hill, University of Southern Indiana

Promoting the Transfer of Math Skills to Engineering Statics

Dr. Alexander John De Rosa, University of Delaware

Dr. Teri Kristine Reed, OU Polytechnic Institute

Samuel Van Horne, University of Delaware

Student Performance on Statics Problems in Deformable Solids: A Look at Pre- and Post-Test Results

Dr. Amie Baisley, University of Florida

Prof. Keith D. Hjelmstad, Arizona State University

A Modified Concept Inventory for Dynamics

Dr. Julian Ly Davis, University of Southern Indiana

Dr. Amie Baisley, University of Florida

Dr. Geoffrey Recktenwald, Michigan State University

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

Dr. Phillip Cornwell, United States Air Force Academy

Thinking Outside the Box: Understanding Students Thinking on Statics in Mechanics

Capt. Katherine E. Welsh, United States Air Force Academy

Dr. Lorena S. Grundy, Tufts University

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

T240A - Voices of Diversity: Perspectives and Experiences in STEM Education

9:15 A.M. - 10:45 A.M., G131, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Stephanie Adams, University of Texas at Dallas; Sarah Hug, Colorado Evaluation and Research Consulting

This session will examine diverse perspectives and experiences within STEM higher education, focusing on students' voices and narratives. Presentations will cover topics such as students' perspectives at Hispanic-Serving Institutions (HSIs), coping strategies of minoritized students in STEM, and intersectional exploration of determinants influencing students' decision-making for

graduate engineering education. Additionally, insights from transfer students' experiences will be analyzed through topic modeling. Join us for an insightful exploration of diversity and inclusion in STEM education through the lens of student perspectives.

Applying an Integrative Belonging Framework to Explore Students' Perspectives at HSIs

Dr. Sarah Hug, Colorado Evaluation and Research Consulting

Dr. Suzanne Eyerman, Fairhaven Research and Evaluation

Coping Strategies of Minoritized Students in STEM Higher Education

Mr. Nagash Clarke

Dr. Joi-Lynn Mondisa, University of Michigan

Decoding Determinants: An Intersectional Exploration of Students' Decision-Making for Graduate Engineering Education

Dr. Najme Kishani, University of Toronto

Prof. Jason Bazylak, University of Toronto

Prof. Aimy Bazylak, University of Toronto

What do Transfer Students Have to Say: An Analysis of the Experience of Transfer Students through Topic Modeling

Ms. Claire MacDonald, The University of Texas at El Paso

Palvi Aggarwal, The University of Texas at El Paso

Xiwei Wang, Northeastern Illinois University

Yun Wan

Dr. Shebuti Rayana, The State University of New York at Old Westbury

Rudy Caraballo

Dr. Sherrene Bogle, Cal Poly Humboldt

T240C - MIND Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 6, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Curtis Taylor, University of Florida

Business Meeting

T241 - Multidisciplinary Engineering Division (MULTI) Technical Session 3

9:15 A.M. - 10:45 A.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: AJ Hamlin, Michigan Technological University; Siobhan Oca, Duke University

2023 ASEE Workshop Combining Arduino and MATLAB for Controls Experiments

Dr. Stephen Andrew Wilkerson P.E., York College of Pennsylvania

Gen Sasaki, MathWorks

Dr. Stephen Andrew Gadsden, McMaster University

Dr. Scott F. Kiefer, York College of Pennsylvania

Mr. Brian Nguyen, McMaster University

Noah Roberts, MathWorks

An Independent Study Course for a Multi-Rotor Design and an Endurance Record

Dr. Stephen Andrew Wilkerson P.E., York College of Pennsylvania

Yargo Teixeira Gomes de Melo, York College of Pennsylvania

Alex Suarez, York College of Pennsylvania

Beyond Exhibits: Exploring Bio-Inspired Education Robots in Museums for STEM Enrichment

Dr. Lydia Ross, Arizona State University

Dr. Deeksha Seth, Villanova University

Empowering Engineers: Enhancing Communication Skills through a Technical Communication Lab

Amanda Dawn Hilliard, The Johns Hopkins University

Ryan Hearty, The Johns Hopkins University

Physical Robots for Teaching Mobility & Manipulation using ROS in Remote Learning

Prof. Maria Eugenia Cabrera, University of Massachusetts, Lowell

Prof. John Raiti, University of Washington

T242 - NEE Division Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: New Engineering Educators Division (NEE)

T244 - Ocean and Marine Division (OMED) Technical Session 2

9:15 A.M. - 10:45 A.M., C125, OREGON CONVENTION CENTER

Sponsor: Ocean and Marine Division (OMED)

Moderator: Maija Benitz, Roger Williams University

A University-County Collaboration to Excite Students about Citizen Science

Dr. Leigh S. McCue, George Mason University

Brianne Elizabeth Bell

Elliot Foster

Boosting Achieved-Learning Outcomes with Maritime-Specific Projects in a Machine Learning Course

Dr. Paul Marty Kump, Kansas State University

Ian August

T246 - Software Engineering Division (SWED) Technical Session #3

9:15 A.M. - 10:45 A.M., A104, OREGON CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Mythili Banka; Siddhant Joshi, Purdue University at West Lafayette (COE)

Smart System Projects in Computer Engineering Program

Dr. Afsaneh Minaie, Utah Valley University

Dr. Reza Sanati-Mehrizy, Utah Valley University

WIP: Managing and Assessing Students in Hybrid Software Project Classes

Prof. Bruce R. Maxim, University of Michigan, Dearborn

Ms. Bency Thomas, University of Michigan, Dearborn

Mrs. Belen A. Garcia, University of Michigan, Dearborn

Analyzing Individual Contribution in Team-based Software Engineering Projects

Joydeep Mitra, Northeastern University

Amir Kirsh

Work in Progress: Identifying Software Engineering Practices and Tools Among Students and Practitioners in Non-Computing Engineering Disciplines

Stephanos Matsumoto, Olin College of Engineering

Dr. Michelle E. Jarvie-Eggart P.E., Michigan Technological University

T247A - Student Division Technical Session 4: Project-based Learning

9:15 A.M. - 10:45 A.M., C123, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Fadhla Junus, Purdue Engineering Education; Yu-Fang Jin, The University of Texas at San Antonio

Enhancing Culinary Precision: Students Embarking on a Project-Based Learning Adventure

Simon Zhang, Northeastern University

Joshua Dennis, Northeastern University

Dr. Haridas Kumarakuru, Northeastern University

Dr. Bala Maheswaran, Northeastern University

Enhancing Student Participation in Online Global Project-Based Learnings (gPBLs) Through a Slack-Based Evaluation: A Student Perspective

Mr. Yujiro Iwata, Shibaura Institute of Technology

Mr. Leo Kimura, Shibaura Institute of Technology

Prof. Hatsuko Yoshikubo Ph.D., Shibaura Institute of Technology

Dr. Sumito Nagasawa Ph.D., Shibaura Institute of Technology

Cultivating Robotic Professionals: A Learning-Practice-Service Educational Framework

James Chengda Lu, BASIS Shavano

Vincent Liu, Brandeis High School

Justin Jin

Parker Olkowski

Dr. Yu-Fang Jin, The University of Texas at San Antonio

Generative Learning in Two Community-Based Experiential

Undergraduate Courses

Mrs. Maryann Renee Hebda, Baylor University

Morgan R. Castillo, Baylor University

Tracey Sulak, Baylor University

T247B - Student Division: Annual Business Meeting

9:15 A.M. - 10:45 A.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Student Division (STDT)

Moderator: Daniel Adeniranye, Florida International University

This event is the Student Division's annual business meeting during which we will review the past year's activities, discuss our progress, and make plans. An essential agenda item is the election of new executive members. Additionally, we anticipate the attendance of one of the Professional Interest Council Chairs.

T249 - Strategies for Building Engineering Education Research Capabilities

9:15 A.M. - 10:45 A.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Technological and Engineering Literacy/ Philosophy of Engineering Division (TELPhE)

Speakers: Dr. Karl A. Smith, University of Minnesota - Twin Cities; Dr. Elizabeth Cady, National Academies of Sciences, Engineering, and Medicine; Russell Korte, The George Washington University

This panel summarizes some of the non-graduate-program-based programs for building engineering-education research capabilities, engages participants in conversation about current efforts, and provides an opportunity to explore future approaches. The panelists will summarize, discuss lessons learned, implications and future prospects for (1) the Annals of Research on Engineering Education (AREE), (2) the Engineering Education Research and Innovation Networking (EER&II) sessions, and (3) Research on Engineering Education for Practice (REEP).

Strategies for Building Engineering Education Research Capabilities: Reflections on Three Past Practices, Exploring Current Practices, and Speculating on Future Practices

Dr. Elizabeth Cady, National Academies of Sciences, Engineering, and Medicine

Russell Korte, The George Washington University

Dr. Karl A. Smith, University of Minnesota, Twin Cities

T250B - Two-Year College Division Business Meeting

9:15 A.M. - 10:45 A.M., COLUMBIA 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Two-Year College Division (TYCD)

Moderator: Dominic Dal Bello, Allan Hancock College

Business Meeting

T251 - Women in Engineering Division (WIED) Technical Session 2 - Personal Situations

9:15 A.M. - 10:45 A.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Laura Bottomley, North Carolina State University at Raleigh

The papers in this session address questions of work/life balance, parenting, and dealing with grief.

Engineers and Mothers of Color: The Struggle of Juggling Work and Children with a Specific Learning Difficulty

Dr. Kimberly Cook-Chennault, Rutgers, The State University of New Jersey

Idalis Villanueva Alarcón, University of Florida

Navigating Grief in Academia: Prioritizing Supports for Women Scholars through Informed Approaches

Mrs. Enas Aref, Western Michigan University

Dina Idriss-Wheeler, University of Ottawa

Julia Hajjar, University of Ottawa

Identifying the Parenting Approaches of Parents of Women in Engineering

Niloufar Bayati, North Carolina State University

Dr. Cameron Denson, North Carolina State University

T252 - Engagement in Practice Lightning Round: Engineering with and for Community Partners

9:15 A.M. - 10:45 A.M., E145, OREGON CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Rajani Muraleedharan, Saginaw Valley State University

Engagement in Practice sessions focus on the "how" of community-engaged learning courses through short case studies covering topics that include partnership development, project design and execution, student evaluation, lessons learned, and replication of success. Each presenter will give a five-minute talk, followed by facilitated discussion with all presenters as a panel.

Engagement in Practice: Addressing Redlining in Introductory Civil Engineering Courses

Dr. George A. Hunt P.E., University of Nebraska, Lincoln

Dr. Elizabeth G. Jones, University of Nebraska, Lincoln

Engagement in Practice: Engineering Solutions for a Local Organic Egg Farm

Alexa Renshaw, Western Washington University

Bree L. Carpenter, Western Washington University

Kylea Assayag-Nodine, Western Washington University

Dr. Derek M. Yip-Hoi, Western Washington University

Prof. Jill Davishahl, Western Washington University

Engagement in Practice: Building Community Engagement into a First-year Design-Build-Test Course

Dr. Katie Snyder, University of Michigan

Prof. Aditi Verma, University of Michigan

FAU Hack-a-Thons: An Introduction to Computational and Hardware, Logistical Skills, and Intense Training for Outcomes-Based Learning for Developing Internet of Things Products

Charles Perry Weinthal

Dr. David Jaramillo

Development and Implementation of K-12 STEM Outreach Programs in Industry and Academia: Successes, Challenges, and Lessons Learned

Dr. Jennifer A. Warrner, Ball State University

Dr. Joe Bradley, University of Illinois Urbana-Champaign

Dr. Sirena C. Hargrove-Leak, Elon University

Dr. Anand Nageswaran Bharath, Cummins Engine Company

T252A - Engineering, Ethics, and Community Engagement

9:15 A.M. - 10:45 A.M., REGENCY BALLROOM D, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Community Engagement Division (COMMENG)

Moderators: Shoshanah Cohen, Stanford University; Rockwell Clancy, Virginia Polytechnic Institute and State University

This special session will explore the connection between ethics and community engagement in engineering education.

Engineering a Bridge Across Cultures: Insights to Support Dialogue with Engineering Professionals on Ethical and Social Design Considerations

Ms. Tiffany Smith, NASA

Dr. Zachary T. G. Pirtle, NASA

Engineering Ethics and Unionization: Challenging NSPE's Positions on Engineers' Relationship with Labor Unions

Lazlo Stepback, Purdue University

Dr. Joey Valle, Purdue University

Engagement in Practice: Innovating a Project-Based, Community Engaged Course for Engineering Students that Fosters Ethical Thinking

Prof. Tucker Krone, Washington University in St. Louis

Prof. Seema Mukhi Dahlheimer, Washington University in St. Louis

Sandra Payton Matteucci

Navigating Transformational Resistance: Exploring Humanitarian Engineering Students' Capacities for Addressing Systemic Causes of Infrastructure Service Disparities

Ms. Emma Sophie Stine, University of Colorado Boulder

Prof. Amy Javernick-Will, University of Colorado Boulder

T256 - Military and Veterans Division (MVD) Technical Session 2

9:15 A.M. - 10:45 A.M., G132, OREGON CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

Moderators: Paul McMonigle, Pennsylvania State

University; Jerry Dahlberg, University of Tennessee, Space Institute

Transition to the Civilian Workforce: Themes and Lessons from Military Service and Culture

Dr. Alyson G. Eggleston, Pennsylvania State University

Dr. Angela Minichiello, Utah State University

Allison Miles, Utah State University

Hannah Wilkinson, Utah State University

Samuel Shaw, Utah State University

Dr. Robert J. Rabb P.E., Pennsylvania State University

Dr. Jerry Lynn Dahlberg Jr, University of Tennessee, Space Institute

Dr. B. "Grant" Crawford P.E., Quinnipiac University

Dr. Oscar Barton, Jr. P.E., Morgan State University

Catherine Kime, Utah State University

Mr. Philip T. Brown, University of North Carolina at Charlotte

Mr. Michael Scott Sheppard Jr., Colorado School of Mines

Scenario-based Emerging Technologies Workshop for Military Leaders

Dr. Aikaterini Bagiati, Massachusetts Institute of Technology

Ms. Kathleen D. Kennedy, Massachusetts Institute of Technology

Dr. Andrés F. Salazar-Gómez, Massachusetts Institute of Technology

Prof. Joshua Siegel, Michigan State University

Prof. Cynthia Breazeal, Massachusetts Institute of Technology

T257A - Faculty Development Division (FDD) Technical Session 4

9:15 A.M. - 10:45 A.M., E144, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Jennifer Brown, Clemson University; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 4

Establishing a Framework for the Effective Mentorship of Junior Engineering Faculty

Himani Sharma

Mrs. Jennifer Hadley Perkins, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University

Dr. Adam R. Carberry, The Ohio State University

Faculty Transformation: a Study of Professional Transition

Dr. Lori Houghtalen, University of Texas at El Paso

Dr. Meagan R. Kendall, University of Texas at El Paso

Investigating Supports, Barrier and Cultural Navigations During Transitions as International Faculty Members

Dr. Debalina Maitra, Arizona State University

Seyed Hamid Reza Sanei, Penn State University, Behrend College

Dr. Jiawei Gong, Penn State University, Behrend College

Transitions in Engineering Leadership: Interim to Permanent Deans and Chairs

Dr. Michael James McGinnis, LeTourneau University

Dr. Matthew G. Green, LeTourneau University

When You Don't Know the Way, Walk Slowly: Our Transition from a Teaching-Intensive University to a Research-Intensive University as Professors of Engineering Practice

Prof. James Canino, Purdue University

Prof. Steve France, Purdue University

Prof. Ruth Wertz, Purdue University

T259 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 7

9:15 A.M. - 10:45 A.M., B118, OREGON CONVENTION CENTER

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

Mechanical Engineering Reasoning Diagram: How Can Modeling Engineering Thinking Support Learning in Writing Intensive Labs?

Dr. Jingfeng Wu, University of Michigan

Dr. Clay Walker, University of Michigan

Meritocracy and Colorblindness: The Perpetuation of Whiteness in Engineering Education Through False Narratives

Dr. R. Jamaal Downey, University of San Diego

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Dr. Diana A. Chen, University of San Diego

Prof. Gordon D. Hoople, University of San Diego

Metaphors in Engineering Education Research: Prisms to Analyze the Epistemological Spectrum

Nrupaja Bhide, Purdue University

Yash Ajay Garje, Purdue University

Siddhant Sanjay Joshi, Purdue University

Not for the Poor: Impacts of COVID-19 on Engineering Students from Lower Socioeconomic Backgrounds

Ms. Nyna Jaye DeWitt, University of Georgia

Animesh Paul, University of Georgia

Dr. Racheida S. Lewis, University of Georgia

Promoting Belonging in Engineering through the Creation of Youth-Centered Technology-Rich Spaces

Kiana Alexa Ramos

Dr. Isabella Stuopis, Boston College

Emanuel Joseph Louime

Peyton Elise Carter

Caitlyn Hancock

Dr. Avneet Hira, Boston College

T259B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 8

9:15 A.M. - 10:45 A.M., A108, OREGON CONVENTION CENTER

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

Queer Ties: A Work in Progress LGBTQ+ Graduate Student Mentorship Program

Brandon Bakka, University of Texas at Austin

Elisa Koolman, University of Texas at Austin

Recentering the User: How an Inclusive Design Class Pushes Students to See Beyond Their Own Experiences

Dr. Allison Murray, Marquette University

Lisa Chase, Marquette University

Work in Progress: Investing in Engineering Futures Through Summer Research Funding

Jessica Baldis, University of California, San Diego

Dr. Alex M. Phan, University of California, San Diego

Work-in-Progress: Exploring Students' Perception of Engineering Classrooms with bell hook's Engaged Pedagogy

Kai Jun Chew, Embry-Riddle Aeronautical University

Report on a Student Community of Practice Program's Impact on Career Preparedness and Sense of Belonging Among Underserved Undergraduate Students in the Electrical & Computer Engineering Major

Dr. Rachael E. Cate, Oregon State University

Jacob Field, Oregon State University

Sierra Kai Sverdrup, Oregon State University

T272 - CMC Industry Day Panel Sessions - Strategies for Advancing Diversity, Equity, and Inclusion: Breaking Barriers and Creating Pathways

9:15 A.M. - 10:45 A.M., B115, OREGON CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: P.j. Boardman, MathWorks

Speakers: Dr. Christine M. Cunningham, Museum of Science; Dr. Bevlee A. Watford P.E., Virginia Polytechnic Institute and State University; Dr. Sarah A. Rajala, Iowa State University of Science and Technology; Dr. Federica Shantel Robinson-Bryant, Embry-Riddle Aeronautical University - Daytona Beach

Join this interactive session to explore strategies for advancing diversity, equity, and inclusion (DEI), ranging from P-12 to higher education to professional societies. Join us to discuss best practices, frameworks, and cases to progress our efforts. Be prepared to share examples from your organization to enrich the discussion. The focus will be national and international reach.

T273 - Zone 1 Business meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 2, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Council of Sections (COS)

Moderators: Bala Maheswaran, Northeastern University; Ilya Grinberg, SUNY Buffalo State University

The Zone 1 Business Meeting will feature introductions of current section officers, presentations on upcoming section activities, discussions of new initiatives, and the gathering of member feedback.

T273A - Zone II Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Council of Sections (COS)

The Zone II Business Meeting will include introductions of Section officers, a recap of the 2024 Section Conferences, the dates (and locations) of 2025 the Section Conferences, new business items, and feedback from membership in attendance.

Moderator: Charles McIntyre, Zone II Chair

T273B - Zone III Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Council of Sections (COS)

T273C - Zone IV Business Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Council of Sections (COS)

Moderator: Eric Davishahl, Whatcom Community College

The Zone IV Business Meeting will feature introductions of current section officers, presentations on upcoming section activities, discussions of new initiatives, and the gathering of member feedback.

T274 - Engineering Deans Council (EDC) Data Committee Meeting

9:15 A.M. - 10:45 A.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Deans Council (EDC)

EDC Data Committee Meeting

T281 - DISTINGUISHED LECTURE: It Takes a Village to Disrupt the Status Quo in Engineering Education

9:15 A.M. - 10:45 A.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Jeremi S. London, Vanderbilt University

"It takes a village to raise a child" is an African proverb that is commonly mentioned when we talk about the role of a wider community in the development of a young person and the positive impact that we can collectively have on a child as they grow. This talk will build on this idea but situate this proverb in the context of broadening participation of Black and brown engineers.

The preliminary findings of this CAREER award include evidence of the institutional and interpersonal villages that surround undergraduate engineering students at six universities that are consistently named among the top producers of Black and brown engineers. By focusing on the macro-organizational structures and micro-interactions with caregivers and peers, we begin to understand facets of students' lived experiences that promote and impede success. One idea that will become paramount is the role that everyone, regardless of where they sit in an institution or the life of an engineering student, plays in broadening participation of Black and brown engineers. In many ways, this talk will cause us to rethink what it means to be members of a village that is collectively striving to shift who gets to be an engineer.

T293 - Developing Meaningful and Effective Proposal Plans for Broader Impacts for P-12 Audiences (CP12)

9:15 A.M. - 10:45 A.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: ASEE Commission on P12 Engineering Education; Faculty Development Division (FDD); Student Division (STDT)

Moderator: Katey Shirey, EduKatey

Speakers: Dr. Gina Navoa Svarovsky, University of Notre Dame; Catherine Wagner, University of Notre Dame; Dr.

Victoria E Goodrich, University of Notre Dame

The National Science Foundation has long prioritized the need to identify and address the broader impacts of NSF-funded research through its proposal review criteria. Over the past two decades, other federal funding agencies, including NIH, the Department of Energy, and the Department of Defense, have also increased their focus on broader impacts by requiring new sections of proposal narratives and introducing new funding opportunities.

Broader impacts activities, which are those intended to contribute to one or more desired societal outcomes, can often be connected to stakeholders in the P-12 education sector. In this session, the University of Notre Dame's Center for Broader Impacts will provide an overview of meaningful and effective broader impacts approaches, examples of fruitful broader impacts activities, and a set of essential considerations when developing a vision and scope for broader impacts work -- all focused on engaging a range of P-12 audiences. Attendees are strongly encouraged to bring draft ideas for potential broader impacts activities or draft proposal descriptions to critically examine and refine during the active working portions of the session.

T294A - SPONSOR TECH SESSION: Leveraging Generative AI for Engineering Course Development: Save Yourself Time and Improve Student Learning - Presented by McGraw Hill

9:15 A.M. - 10:45 A.M., B110 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Learn how faculty can harness generative AI tools like ChatGPT, MidJourney, Gamma, custom-built GPTs, and others to streamline course development and elevate educational outcomes.

Discover practical applications of AI for creating high-quality presentations, comprehensive lecture notes, targeted learning objectives, and robust assessments.

This presentation will include both demonstrations and critical discussion on the ethical use of AI in education, its environmental implications, and the challenge of academic integrity in the digital age. Attendees will leave equipped to enhance teaching efficiency and enrich student learning experiences by effectively integrating AI into their educational practices.

Refreshments will be served. Space is limited.

T294B - SPONSOR TECH SESSION: Using the FE Exam for Effective Outcomes Assessment and Course Improvement, Presented by NCEES

9:15 A.M. - 10:45 A.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join us for an informative session on how you can use the FE exam as part of your continuous improvement processes for your individual courses and engineering programs. The FE exam provides valuable, nationally normed direct-assessment data that allows you to understand how your students compare with those across the nation. It can also be a valuable part of your continuous improvement process, using the NCEES Subject Matter Reports to provide you with information about the strengths and weaknesses of students in your courses and program in addition to the ABET-required student outcomes. Information packets provided. Questions answered.

Speakers:

Grant Crawford, P.E., Ph.D., F.ASEE, Colonel (retired) U.S. Army, is a Professor of Mechanical Engineering for the School of Computing and Engineering at Quinnipiac University. He is a former Director of the Mechanical Engineering Program at the United States Military Academy at West Point, New York. He has served as a Program Evaluator for ABET's Engineering Accreditation Commission and a Commissioner and Team Chair for the Engineering Technology Accreditation Commission. He has been a member of the Fundamentals of Engineering Exam Committee for the National Council of Examiners for Engineers and Surveyors (NCEES) since 2005 and has chaired the committee. He is currently serving as the President-Elect for ASEE.

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.

T294C - SPONSOR TECH SESSION: Exploring the Path of Becoming an ABET Program Evaluator: Is It the Right Fit for You? Presented by ABET

9:15 A.M. - 10:45 A.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

This presentation is specifically tailored for individuals who are considering becoming a PEV and would like to gain a comprehensive understanding of the responsibilities involved in this role. The talk will delve into the intricacies of an ABET visit, as seen from the perspective of a PEV, starting from the initial assignment all the way through the campus visit and post-visit activities. The presentation will touch upon various topics including effective communication with the team, strategies for reviewing program materials, and establishing communication with the program prior to the visit. Additionally, the presentation will cover mandatory documentation requirements, arranging travel, and what to expect upon arriving on campus. Throughout the presentation, emphasis will be placed on the importance of teamwork in the decision-making process and the support that experienced team members can provide.

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

T202 - Walking Tour of Portland

10:00 A.M. - 11:45 A.M., OFFSITE, THE WALKING TOUR STARTS FROM SISTERHOOD COMMEMORATIVE BELL SAPPORO (SOUTH EAST CORNER OF THE CONVENTION CENTER) AND WE WILL FOLLOW THE DOWNTOWN WATERFRONT LOOP WALK., 701 SE GRAND AVE., PORTLAND, OR 97214

Sponsor: Architectural Engineering Division (ARCHE)

The Architectural Engineering Division will host a walking tour of Portland, starting at the Sisterhood Commemorative Bell Sapporo (i.e. Southeast corner of the convention center). The tour follows the downtown waterfront loop along the Willamette River, offering views of the city's bridges and skyline. Highlights include Tom McCall Waterfront Park, the Steel and Hawthorne bridges, and the Eastbank Esplanade with its floating walkway.

Free ticketed event

T301 - Aerospace Division (AERO) Technical Session 2

11:00 A.M. - 12:30 P.M., G129, OREGON CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Tracy Yother, Purdue University at West Lafayette (PPI)

Leveraging Ontologies in Engineering Education: Top-Down and Bottom-Up Approaches

Waterloo Tsutsui, Purdue University
Mr. Vladimir Zeltsman, Purdue University
Tyler Scott Adams, Purdue University
Dr. Jitesh H. Panchal, Purdue University
Daniel Delaurentis, Purdue University

Developing an Aerospace Degree Program Responsive to Student Needs—If You Build It They Will Come

Dr. Michael C. Hatfield, University of Alaska, Fairbanks
Dr. Denise Thorsen, University of Alaska, Fairbanks

Scaling an Aerospace Engineering Senior Design Program to Handle Increased Enrollment

Dr. Kathryn Anne Wingate, University of Colorado Boulder
Dr. Marcus Holzinger, University of Colorado Boulder

Design of an Aerospace Industry-Informed Technical Writing and Communication Course

Glen Roderic Coates, Pennsylvania State University
Dr. Alyson G. Eggleston, Pennsylvania State University
Dr. Robert J. Rabb P.E., Pennsylvania State University

Implementation of a Hands-On Aerospace Design Project During the COVID Pandemic

Prof. Rani W. Sullivan, Mississippi State University
Shuvam Saha, Mississippi State University

Dr. Masoud Rais-Rohani, University of Maine

Assessment of Static Stability Through Concept Mapping

Ms. Karen Dinora Martinez Soto, Virginia Tech

T305 - DISTINGUISHED LECTURE: Richard Felder, ASEE Hall of Fame Inductee

11:00 A.M. - 12:30 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

T306 - Civil Engineering Division (CIVIL) - ASCE Collaborations

11:00 A.M. - 12:30 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Leslie Nolen, American Society of Civil Engineers; Scott Hamilton, York College of Pennsylvania

A Comparison of Civil Engineering Curriculum and EAC-ABET Civil Engineering Program Criteria

Dr. Matthew K. Swenty P.E., Virginia Military Institute

Dr. Brian J. Swenty P.E., University of Evansville

Advancing the ASCE ExCEEd Teaching Workshop: A Multi-Year, Multi-Stage Evaluation Process and Implementation Plan

Dr. Daniel Ivan Castaneda, James Madison University

Afeefa Rahman, University of Illinois Urbana-Champaign

Casey J. Rodgers, University of Illinois Urbana-Champaign

Patricia Clayton, Wake Forest University

Mr. Dion Karean Coward

Prof. Jacob Henschen, University of Illinois Urbana-Champaign

Dr. Tanya Kunberger P.E., University of Pittsburgh at Johnstown

Ms. Leslie Nolen, American Society of Civil Engineers

Dr. Pinar Omur-Ozbek, Colorado State University

Dr. Monica Palomo, California State Polytechnic University, Pomona

Carolyn M. Rodak, State University of New York, Polytechnic Institute

Dr. David A. Saftner, University of Minnesota Duluth

Designing a New Civil Engineering Curriculum to Prepare Tomorrow's Engineer

Dr. Elizabeth G. Jones, University of Nebraska, Lincoln

How Do We Take Full Advantage of the Academic Benefits of Student Competitions

Carly Woelfel, United States Military Academy

Major Brett Rocha P.E., United States Military Academy

Dr. Kevin Francis McMullen, United States Military Academy

Major Kevin Taylor Scruggs, United States Military Academy

Dr. Talal Salem, United States Military Academy

Col. Aaron T. Hill Jr. P.E., United States Military Academy

Integrating Professional Credentialing in Sustainability into Civil Engineering Curriculum: A Case Study

Timmy Elwin Kipfmiller III, United States Military Academy

Alexander Tucker, United States Military Academy

Charles James Richardson Reeves, United States Military Academy

Nicholas Ryan Parker, United States Military Academy

Lt. Col. Scott M. Katalenich, United States Military Academy

T308 - Robotics and Circuits

11:00 A.M. - 12:30 P.M., D137, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Carlotta Berry, Rose-Hulman Institute of Technology

The session highlights papers focused on teaching robotics and circuits.

Scaffolding Strategies for Teaching ROS 2: An Approach Using JupyterLab and iRobot™ Education's Create® 3 Robot

Miss Kathryn Lara Wujciak, Tufts University

Dr. Briana M. Bouchard, Tufts University

Prof. Chris Buergin Rogers, Tufts University

Open-source Robotics for Academics: A Platform that Grows with the User

Dr. Carlotta A. Berry, Rose-Hulman Institute of Technology

Katie Nicole Faith Collins, Rose-Hulman Institute of Technology

Alejandro Marcenido Larregola, Rose-Hulman Institute of Technology

Constructing Reconfigurable and Affordable Robotic Arm Platform to Teach Robotics and Automation

Carl Joseph Murzynski, Pennsylvania State University, Behrend College

Dr. Hussein - Abdeltawab, Wake Forest University

Dr. Omar Ashour, Pennsylvania State University, Behrend College

Ahmed Sammoud, Pennsylvania State University, Behrend College

Comparing Circuitry Interest in Engineering Between Different Hands-On Projects

Dr. Nicholas Hawkins, University of Louisville

Dr. James E. Lewis, University of Louisville

Dr. Brian Scott Robinson, University of Louisville

Dr. Angela Thompson P.E., University of Louisville

T308B - Generative AI and Engineering Education Classrooms

11:00 A.M. - 12:30 P.M., B117, OREGON CONVENTION CENTER

Sponsors: Computers in Education Division (COED); Student Division (STDT)

Moderators: Mahnas Mohammadi-Aragh, Mississippi State University; Kerrie Hooper, Florida International University

Speakers: Dr. Susan McCahan, University of Toronto; Dr. Aditya Johri, George Mason University; Ms. Phyllis Beck, Mississippi State University; Dr. Andrew Katz, Virginia Polytechnic Institute and State University

The Computers in Education and Student Divisions of ASEE jointly present this panel focused on generative artificial intelligence (GAI) in engineering education.

The need for engineers to abide by professional and ethical conduct in the discharge of their duties is greatly important in ensuring the safety of people and the reputation of the engineering profession. 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 GAI 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 address the following questions: 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?

T309 - Project/Problem Based Learning (PBL) in Construction Education

11:00 A.M. - 12:30 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Rachel Mosier, Oklahoma State University; Mostafa Batouli, The Citadel

Evaluating Students' Perceptions of Executing a Construction Lab Project Using Procore®

Dr. Shaghayegh Kurzinski, Roger Williams University

Anne Anderson, Roger Williams University

Jonathan Robert Gomes, Roger Williams University

A Game-Based Learning Method to Promote Soft Skills in Construction Education

Raissa Seichi Marchiori, The University of Alabama

Dr. Siyuan Song, The University of Alabama

Exploring Students' Perception Toward Design-Build as an Educational Delivery Method

Dr. Mohsen Garshasby, Mississippi State University

Dr. Saeed Rokooei, Mississippi State University

Dr. Mohsen Goodarzi, Ball State University

Ali Garshasbi, Mississippi State University

A Guideline for the Development of a Scenario-Based Senior Capstone Course for Construction Engineering and Management Students

Prof. Namhun Lee, Central Connecticut State University

Dr. Seong Jin Kim, Minnesota State University, Mankato

Dr. Jiyong Choi, Central Connecticut State University

WIP: Using Real Materials Scale-Modeled for Learning about Construction

Daniel Abril Camino

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

- Continuing Professional Development Division (CPD) Technical Session 1

11:00 A.M. - 12:30 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Continuing, Professional, and Online

Education Division (CPOED)

Moderators: Candace Teixeira, University of Southern California; Kerri Poppler James, University of Maryland, College Park

Professional Skills to Support Interdisciplinary Work: Lessons Learned from a Successful Collaboration between Universities, Training Programs, and Professional Societies

Dr. Katy Luchini-Colbry, Michigan State University

Dr. Dirk Joel-Luchini Colbry, Michigan State University

Julie Rojewski, Michigan State University

Mrs. Astri Briliyanti

Defining, Measuring, and Recording Professional Skills: An Explication of a Professional Skills Certification Framework and Assessment Rubric

Mary Grace Golden, Purdue University

Dr. Emeline Anne Ojeda-Hecht, Purdue University

Savannah Meier, Purdue University

Prof. Eric Holloway, Purdue University

Dr. Jennifer S. Linvill, Purdue University

Impact of STEM Professional Development on Graduate Trainees' Scholarship

Oyinkansola Aladeokin, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Adekemisola Olufunmilayo Asahiah, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Hannah Abedoh, Morgan State University

To Build or to Buy, That is the Question

Dr. Wanju Huang, Purdue University

Ms. Margaret Wu, Purdue University

T311 - CEED Division Business Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Cooperative and Experiential Education Division (CEED)

This is a biannual meeting of the CEED Division of ASEE. All members are welcome to attend.

T313 - Design in Engineering Education Division (DEED) - DEI and Design Education

11:00 A.M. - 12:30 P.M., E148, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Andrew Olewnik, University at Buffalo, The State University of New York

Embrace Diversity and Inclusion in Academic Makerspaces with a Network of Tutors (Work in Progress)

Miss Chi Ying Chan, University of Hong Kong

Dr. Chun Kit Chui, University of Hong Kong

Work in Progress: Redesigning the First-Year Engineering and Computer Science Experience

Dr. Sebastian Dziallas, University of the Pacific

Dr. David Mueller, University of the Pacific

Dr. Shelly Gulati, University of the Pacific

Mary Kay Camarillo, University of the Pacific

Dr. Abel A. Fernandez P.E., University of the Pacific

Dr. Chi-Wook Lee, University of the Pacific

Dr. Vivek Pallipuram, University of the Pacific

Prof. Kyle A. Watson, University of the Pacific

Outcomes from a Multi-Year Design-Oriented Summer Engineering Program at a Hispanic-Majority Institution

Dr. Matthew Lucian Alexander P.E., Texas A&M University, Kingsville

Dr. Michael Preuss, Exquiri Consulting, LLC

Dr. David Hicks

Dr. Breanna Michelle Weir Bailey P.E., Texas A&M University, Kingsville

Mr. Rajashekar Reddy Mogiligidda, Texas A&M University, Kingsville

Lihua Zuo, Texas A&M University, Kingsville

Dr. Mahesh Hosur

Impacts of Social and Equity-Centered Instruction on Students' Ability to Navigate Related Tradeoffs in Systems-Level Design

Dr. Brenda Read-Daily, Elizabethtown College

Dr. Kurt M. Degoede, Elizabethtown College

Prof. Troy O. McBride, Elizabethtown College

Dr. Rachel Koh, Smith College

T314A - Educational Research and Methods Division (ERM) Technical Session 10

11:00 A.M. - 12:30 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Christopher Rennick, University of Waterloo

Disentangling the Intersectional Identities of Disabled Women in Engineering Programs through Narrative Inquiry (WIP)

Ms. Rachel Figard, Arizona State University

Dr. Jennifer M. Bekki, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

Manufacturing Inclusive Excellence: An Intersectional, Mixed Methods Study of Engineering Identity among Undergraduate Research Students at a Historically Black University

Dr. Lara Perez-Felkner, Florida State University

Ciera Fluker

Dr. Tarik J. Dickens

Dr. Chelsea Armbrister, Florida A&M University - Florida State University

Review of Sense of Belonging Relevant Concepts in STEM Higher Education

Mrs. Xiaoye Yang, University of Massachusetts, Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

The Impact of Diaries and Reflection on Self-Assessments of Learning in a First-Year Undergraduate Engineering Design Course

Serena Mao, Harvey Mudd College

David Chen, Harvey Mudd College

Magdalena Jones, Harvey Mudd College

Aye Mon Htut-Rosales, Harvey Mudd College

Dr. Laura Palucki Blake

Leah Mendelson, Harvey Mudd College

Steven Santana, Harvey Mudd College

WIP: Development of a Survey to Investigate Engineering Faculty Diversity, Equity, Inclusion, and Belonging (DEIB) Practices in Graduate Research Group Environments

Luis Delgado Jr., Penn State

Catherine G. P. Berdanier, Pennsylvania State University

Investigating the Impact of College Students' Personal Characteristics on Peer Assessment: A Multilevel Linear Modeling Approach

Miss Xiaping Li, University of Michigan

Dr. Robin Fowler, University of Michigan

Mark Mills, University of Michigan

[Work-in-Progress] Sense of Belonging in STEM Higher Education: Developing a Scoping Review Protocol and Strategy

Collins Ugonna Lawrence, University at Buffalo, The State University of New York

Dr. Eunsil Lee, University at Buffalo, The State University of New York

T314B - Educational Research and Methods Division (ERM) Technical Session 11

11:00 A.M. - 12:30 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jenni Buckley, University of Delaware

Benefits of the Culture of Inclusion Survey

Dr. Denise M. Driscoll, Purdue University

Kristin M. Everett, Everett Evaluation

Dr. Alycia J. Sterenberg Mahon, Everett Evaluation

Leveraging Lived Experiences of Nontraditional Engineering Students: Preliminary Data and Analysis

Dr. Ean H. Ng, Oregon State University

Dr. Ganapathy S. Natarajan, University of Wisconsin, Platteville

Ingrid Scheel, Oregon State University

Chukwudiebube Atagbuzia, Oregon State University

Nathan Mast, University of Wisconsin, Platteville

Stories of Appalachian Engineers: A Phenomenographical Study of Appalachian Students' Quest for Success in Undergraduate Engineering Programs

Mr. Matthew Sheppard, Clemson University

Dr. Lisa Benson, Clemson University

Undertaking Undergraduate Research in Mechanical Engineering as a Nontraditional Student: A Personal Perspective

David Paul Fernandez, Utah Valley University

Walker Eads, Utah Valley University

Dr. Israd Hakim Jaafar, Utah Valley University

Prof. Abolfazl Amin, Utah Valley University

Dr. Abdennour C. Seibi, Utah Valley University

Unpacking Critical Socializers Impacting STEM Students' Motivation at a Minority Serving Institution

Dr. Jeffrey Stransky, Rowan University

Dr. Prateek Shekhar, New Jersey Institute of Technology

Work in Progress: Stigma of Mental Health Conditions and its Relationship to Conditions' Knowledge and Resource Awareness among Engineering Students

Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York

Muhammad Ali Sajjad, University at Buffalo, The State University of New York

Nichole Ramirez, Purdue University

Work-in-Progress: A Scoping Literature Review of Theoretical Frameworks on Discrimination Against Asian Engineering Students

Ms. Anjing Dai, Arizona State University

Xingchen Xu, Arizona State University

Li Tan, Arizona State University, Polytechnic Campus

T314C - Educational Research and Methods Division (ERM) Technical Session 12

11:00 A.M. - 12:30 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Shannon Clancy, University of Michigan

Developing Research Identity: Experiences and Influences Leading to Undergraduate Students' Growth as Researchers

Samantha Splendido, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

Prof. Karen A. Thole, Pennsylvania State University

Prof. Jacqueline O'Connor, Pennsylvania State University

Exploring Diverse Work Personas of Engineering Design Graduates through Cluster Analysis

Dr. Xiao Ge, Stanford University

Dr. Mark Schar, Stanford University

Dr. Helen L. Chen, Stanford University

Prof. George Toye

Dr. Sheri D. Sheppard, Stanford University

Putting Affect in Context: Meta-Affect, Beliefs, and Engineering Identity

Alyndra Mary Plagge, Trinity University

Dr. Emma Treadway, Trinity University

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Danielle Francine Usinski, University at Buffalo, The State University of New York

Representing Researcher Identity with I-Poems

Alexis Gillmore, University of Tennessee, Knoxville

Dr. Courtney June Faber, University at Buffalo, The State University of New York

STEM Identity Development: Examining the Effect of Informal Summer Learning Experience on Middle School Students

Mr. Hank Boone, University of Nevada, Las Vegas

Danxu Wang, University of Nevada, Las Vegas

Dr. Emma Regentova, University of Nevada, Las Vegas

Prof. Venkatesan Muthukumar, University of Nevada, Las Vegas

SJ Kim, University of Nevada, Las Vegas

Jonathan Hilpert, University of Nevada, Las Vegas

Equitable Engineering Identity? Race/Ethnicity and Gender Differences in the Predictors of Engineering Identity in First-Year Engineering

Dr. Matthew Bahnson, Purdue University

Dr. Eric Trevor McChesney, University of Pittsburgh

Carlie Laton Cooper, University of Georgia

Dr. Allison Godwin, Cornell University

Dr. Linda DeAngelo, University of Pittsburgh

Kevin R. Binning

T314D - Special Session: Meet the Engineering Education Pioneers

11:00 A.M. - 12:30 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Huihui Qi, University of California, San Diego

Speaker: Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

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 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/.

T315B - Modern Teaching Strategies in Engineering

11:00 A.M. - 12:30 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Amr Hassan, University of Pittsburgh; Yuting Chen, University of Illinois at Urbana - Champaign

This session is focused on active learning, visualization techniques, cybersecurity education frameworks, and cyber-physical security enhancements.

Advancing Active Learning in Electronics with Customized Printed Circuit Boards

Dr. Kenan Baltaci, University of Wisconsin, Stout

Ms. Monika Herrmann, University of Wisconsin, Stout

Enhanced Learning by Visualization Applying Embedded Hands-On in Electromagnetics Class

Dr. Hoo Kim, LeTourneau University

Neil Rogers, United States Air Force Academy

Dr. George York, United States Air Force Academy

Dr. Paul R. Leiffer, LeTourneau University

Leveraging Peer-Authored Tutorials to Cultivate Programming Skills and Promote Open Educational Resources: A Multi-Classroom Case Study

Dr. Dirk Joel-Luchini Colbry, Michigan State University

Importance of Cyber-Physical Security Training in Electrical Engineering Education

Sangshin Park, University of Utah

Dr. Reza Kamali-Sarvestani, California State University, San Marcos

Prof. Jairo Giraldo, University of Utah

Dr. Hamed Nademi, California State University, San Marcos

Dr. Masood Parvania, University of Utah

Exploring Outcome Expectations in Artificial Intelligence and Internet of Things in First-Year Engineering Students (Work in Progress)

Ing. Andrea Ramirez-Salgado, University of Florida

Dr. Pavlo Antonenko

T316 - The Role of Colleges and Universities in Accelerating Community Energy Transitions

11:00 A.M. - 12:30 P.M., D140, OREGON CONVENTION CENTER

Sponsors: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE); College Industry Partnerships Division (CIP); Environmental Engineering Division (ENVIRON); Multidisciplinary Engineering Division (MULTI); Instrumentation Division (INST); Engineering and Public Policy Division (EPP); Two-Year College Division (TYCD); Mechanical Engineering Division (MECH); Minorities in Engineering Division(MIND); Women in Engineering Division (WIED); Ocean and Marine Division (OMED); Entrepreneurship & Engineering Innovation Division (ENT); Pre-College Engineering Education Division (PCEE)

Moderator: Peter Garforth

Speakers: Peter John Garforth; Michael A. Nealon, Henry Ford College; Reuben Brukley, Henry Ford College; Nicholas Paseiro, Henry Ford College; Herbert Sinnock, Sheridan College; Spencer Wood, Humber College

This panel session will focus on case studies of successful, rapid decarbonization of energy use in large, complex colleges, including the challenges, opportunities, and results. Also up for discussion will be the ability of the structured and integrated process to be effectively extended to host communities and the potential for academic curricula development.

Free ticketed event

T318 - Engineering Design Graphics Division (EDGD) Business Meeting

11:00 A.M. - 12:30 P.M., COLUMBIA 4 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Design Graphics Division (EDGD)

T320 - Engineering, Ethics, and Leadership

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM D, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: Engineering Ethics Division (ETHICS); Engineering Leadership Development Division (LEAD)

Moderators: Rockwell Clancy, Virginia Polytechnic Institute

and State University; Meg Handley, Pennsylvania State University

This special session will explore the connection between ethics and leadership in engineering education.

Exploration of Career and Ethical Challenges of Analytics and Generative Artificial Intelligence in an Engineering Leadership Course

Dr. B. Michael Aucoin P.E., Texas A&M University

Zhendi Zhang, Texas A&M University

Miles O. Dodd, Texas A&M University

Navigating the Mystery: An Approach for Integrating Experiential Learning in Ethics into an Engineering Leadership Program

Dr. James N. Magarian, Massachusetts Institute of Technology

John M. Feiler, Massachusetts Institute of Technology

Leo McGonagle, Massachusetts Institute of Technology

Eileen Milligan, Massachusetts Institute of Technology

Alexander Rokosz, Massachusetts Institute of Technology

Elizabeth Schanne, Massachusetts Institute of Technology

Dr. Reza S. Rahaman, Massachusetts Institute of Technology

Prof. Olivier Ladislas de Weck, Massachusetts Institute of Technology

Educating the Whole Engineer: Leveraging Communication Skills to Cultivate Ethical Leadership Character

Mrs. Farnoosh B. Brock, Prolific Living Inc.

Dr. Jessica Koehler, Wake Forest University

Mr. Andy Brock, Prolific Living

Dr. Olga Pierrakos, Wake Forest University and National Science Foundation

Benchmarking a Foundation for Improving Psychological Safety in Teams

Dr. Michelle Marincel Payne, Rose-Hulman Institute of Technology

Dr. Kenneth W. Lamb P.E., California State Polytechnic University, Pomona

Mr. Seth Claberon Sullivan, Texas A&M University

Dr. Kyle G. Gipson, Clemson University

T321 - Panel: Opaque and Unreproducible Systematic Reviews - Oh No! How Librarians Can Support Evidence Synthesis Projects in Engineering

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Description of the intended audience:

This session will apply to several different groups, including academic subject liaison librarians, library & information science students, library/information science faculty, and engineering faculty and researchers who are interested in conducting transparent and reproducible systematic reviews.

Summary of ideas to be explored and discussed:

Systematic reviews and meta-analyses are fast-growing research methods in engineering. These evidence-synthesis methods require a high degree of rigor in their development and reporting and research shows that engineering researchers are often not following published reporting guidelines.

This session will introduce participants to the findings of two scoping reviews focused on investigating the prevalence of systematic reviews and meta-analysis in the engineering literature, as well as to what extent engineering researchers are following established reporting guidelines. One of these scoping reviews, titled A Scoping Review of Engineering Education Systematic Reviews, was recently published in a special issue of the *Journal of Engineering Education* focused on systematic reviews (doi:10.1002/jee.20549). The second scoping review focused on eleven engineering disciplines and is in the final write up stage.

Engineering librarians are in a unique position to help researchers in our liaison areas produce higher quality reviews. This panel session will discuss how to engage with researchers through identifying different review types and associated reporting guidelines, developing search strategies and selecting databases, reporting reproducible methods, and educating our researchers on evidence synthesis. From traditional research consultations to full co-authorship, this panel will examine the different forms this engagement between engineering librarians and engineering researchers can take.

This session is for librarians and faculty at all levels, and there will be time included in the session for small table discussions after the presentation by the panelists.

Expected outcomes for the session:

1. Describe different types of evidence synthesis studies

2. Locate and interpret reporting guidelines for different evidence synthesis methods

3. Articulate the potential roles for librarians in supporting evidence synthesis projects

4. Explore areas where engineering researchers could improve the reporting and reproducibility of their evidence synthesis methods

Outline of the session:

(90 Minutes)

(5 min) Introduction of panelists

(5 min) Overview of evidence synthesis

(10 min) Scoping review - project overview

(10 min) Quick tour of reporting guidelines

(10 min) What engineering researchers miss in the guidelines

(10 min) How librarians can collaborate towards better reviews

(10 min) Questions for the panelists

(30 min) Active learning in small table break-out discussions

T323B - Engineering Technology Division Business Meeting

11:00 A.M. - 12:30 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderator: Scott Dunning, Virginia Polytechnic Institute and State University

T324A - Entrepreneurship and Innovation Division (ENT) Business Meeting

11:00 A.M. - 12:30 P.M., A107, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Annual Business Meeting

T326 - ELOS Technical Session 5 - Remote, Virtual, and Digital Realities

11:00 A.M. - 12:30 P.M., B119, OREGON CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Dominik May, University of Georgia

Thematic Insights from Focus Groups: Addressing Digital Inequalities in Remote Laboratories for Equitable Engineering Education

Mr. Marcos Jose Inonan Moran, University of Washington

Dr. Rania Hussein, University of Washington

Expanding Support for Engaged Remote Student Learning of Internet of Things Concepts and Technology

Dr. David Hicks, Texas A&M University, Kingsville

Dr. Lifford McLauchlan, Texas A&M University, Kingsville

Dr. Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

Hemanth Kumar Reddy Bhimavarapu

Perception of Students in Virtual Laboratories: The Role of Context

Deborah Moyaki, University of Georgia

Isaac Damilare Dunmoye, University of Georgia

Dr. Cheryl T. Gomillion, University of Georgia

Dr. Dominik May, University of Wuppertal

Dr. Nathaniel Hunsu, University of Georgia

Comparative Analysis of Haptic Gloves for Custom-Developed VR Applications

Dr. Michael Ulan Genialovich Dakeev, Sam Houston State University

Dr. Iftekhar Ibne Basith, Sam Houston State University

Dr. Suleiman M Obeidat, Texas A&M University

Dr. Reg Recayi Pecen, Sam Houston State University

Dr. Faruk Yildiz, Sam Houston State University

Alyona Maliassova, Sam Houston State University

Paige Horton, Sam Houston State University

Refining Flow Characterization Desk-Scale Experiments and Blended Learning in Engineering Education: A Framework for Assessment

Dr. Fernando Merida, University of Florida

Dr. Sindia M. Rivera-Jiménez, University of Florida

T327 - First-Year Programs Division: Best of FPD

11:00 A.M. - 12:30 P.M., C124, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: J. Hylton, Ohio Northern University; Cassondra Wallwey, Virginia Polytechnic Institute and State University

This session features presentations from each of the FPD 2024 Best Paper finalists.

Near-Peer Mentors' Discussions with a Student Avatar Experiencing Logistical Issues on a First-Year Design Team

Dr. Pamela S. Lottero-Perdue, Towson University

Dr. Haritha Malladi, University of Delaware

Dr. Marcia Gail Headley, University of Delaware

Neurodivergent and Neurotypical Students in a First-Year Engineering Design Course: Identity, Self-Efficacy, and Experiences

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Sense of Belonging within an Undergraduate First-Year Engineering Program: Comparison Across Different Levels of Math Readiness and URM Status

Mr. Hamidreza Taimoory, Virginia Polytechnic Institute and State University

Dr. David Gray, Virginia Polytechnic Institute and State University

Dr. Tameka Sharona Clarke Douglas, Virginia Polytechnic Institute and State University

Promoting Equity and Academic Achievement for Traditionally Underrepresented First-Year Students in Engineering through a Peer Mentoring Program

Dr. Kelyn Rola, Southern Methodist University

Dr. Caitlin M. Anderson, Southern Methodist University

Dr. Kristen McAlexander, Schreiner University

A Case Study on How Instructors' Pedagogical Knowledge Influences Their Classroom Practices for First-Year Engineering Courses

Shabnam Wahed, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute and State University

T328 - Graduate Studies Division (GSD) Technical Session 5: Skill Development in Graduate Education

11:00 A.M. - 12:30 P.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Case-Based Learning Approach to Teach Students How to Read Academic Papers

Dr. Peter Jamieson, Miami University

Cultivating Scientific Communication Skills through Professional Development Course Series for the Graduate Curriculum

Dr. Leslie M. Shor, University of Connecticut

Britney Russell, University of Connecticut

Antigoni Konstantinou, University of Connecticut

Ayah Abdallah, University of Connecticut

Dr. Fayekah Assanah, University of Connecticut

Crossing the Threshold: Improving STEM Graduate Student Education through Project Management Skills Training

Yiqi Liang, Iowa State University of Science and Technology

Dr. Qing Li, Iowa State University of Science and Technology

Dr. Gül E. Kremer, University of Dayton

Prof. Nigel Forest Reuel, Iowa State University of Science and Technology

Dr. Ann M. Gansemer-Topf, Iowa State University of Science and Technology

Prof. Shan Jiang, Iowa State University of Science and Technology

Skill Development of Engineering and Physical Science Doctoral Students: Understanding the Role of Advisor, Faculty, and Peer Interactions

Abdulrahman Alsharif, Virginia Polytechnic Institute and State University

Dr. Maya Denton, University of Oklahoma

Dr. David B. Knight, Virginia Polytechnic Institute and State University

Dr. Maura Borrego, University of Texas at Austin

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Assessing a Seminar Series Designed to Help Prepare Doctoral Engineering Graduates for the Academic Job Market

Dr. Michelle C. Vigeant, Pennsylvania State University

Dr. Vikash Gayah, Pennsylvania State University

Prof. Andrea Paola Arguelles, Pennsylvania State University

T329 - Industrial Engineering Division (IND) Technical Session 3

11:00 A.M. - 12:30 P.M., F149, OREGON CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderators: Nina Miville, University of Miami; Sabahattin Ozden

Generative AI, simulation modeling, and virtual learning as tools for fostering engineering education

Team Dynamics And Conflict Resolution: Integrating Generative AI in Project-Based Learning to Support Student Performance

Enas Aref, Western Michigan University

Sensor-based Measurement of Physiological Response to Test Anxiety

Sara Amani, Texas A&M University

Prof. Dianna Morganti, Texas A&M University

Dr. Kristi J. Shryock, Texas A&M University

Mr. Lance Leon Allen White, Texas A&M University

Awareness of Feature Importance in Artificial Intelligence Algorithms

Dr. Ebisa Wollega, Colorado State University, Pueblo

Melissa Braddock

Dr. Lisa Bosman, Purdue University, West Lafayette

Improving Verification Skills for a Discrete-Event Simulation Model

Dr. Sima Parisay, California State Polytechnic University, Pomona

Optimizing Virtual Learning: Advanced Recommendations for an AI Teaching Assistant

Mr. Md Abdullah, The University of Texas at Arlington

Mr. Gowtham Nageshwara Rao, The University of Texas at Arlington

Faith Lauren Sowell, The University of Texas at Arlington

Vibhav Nirmal, The University of Texas at Arlington

Dr. Shuchisnigdha Deb, The University of Texas at Arlington

T330 - Computing and Information Technology Division (CIT) Technical Session 5

11:00 A.M. - 12:30 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Dr. Jeffrey Yackley, University of Michigan - Flint; Seyed Mousavinezhad, Idaho State University

Paving Digital Infrastructure: Innovation Through an Educational Video Game Database

Anthony Daniel Jones, Texas A&M University

Dr. Michael S. Rugh, Texas A&M University

Meet Mahesh Gamdha, Texas A&M University

Tristen James Norman, Texas A&M University

Rose Myers, Texas A&M University

Kailee Meek, Texas A&M University

Amir Hossein Khazaei, Texas A&M University

Sherry Minh Nguyen, Texas A&M University

Ethan Thai Nguyen, Texas A&M University

Seamless Integration of Digital Circuits and Assembly Language

Prof. Yumin Zhang, Southeast Missouri State University

altREU: An Alternative Online Research Experience Broadens Opportunities for Undergraduates

MacKenzie Gray, Portland State University

Erin Shortlidge, Portland State University

Prof. Christof Teuscher, Portland State University

Teaching Programming Languages by Two Teachers: Instructor and ChatGPT

Dr. Alireza Kavianpour, DeVry University

The Impact of Extended Reality-based Digital Approaches to Support STEM Learning for Autistic Students

Dr. J. Cecil, Oklahoma State University

Avinash Gupta, University of Illinois at Urbana-Champaign

T331 - Project-Based Learning Enhanced through Instrumentation

11:00 A.M. - 12:30 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Instrumentation Division (INST)

Moderators: Bradley Kicklighter, University of Southern Indiana; Abhijit Nagchaudhuri, University of Maryland Eastern Shore

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.

Smart Traffic Light System for Arterials (WIP)

Dr. Cyril B. Okhio P.E., Kennesaw State University

Dr. Austin B. Asgill P.E., Kennesaw State University

Nicholas Velatini

Dr. Theodore Orrin Grosch, Kennesaw State University

Developing Entrepreneurial Skills through an Innovative Senior Capstone Design Project - MouseHead

Dr. Austin B. Asgill P.E., Kennesaw State University

Dr. Cyril B. Okhio P.E., Kennesaw State University

A Project Based Learning Approach for Development of an Experimental Setup and a Simulator for Position and Velocity Control of a DC motor with Interactive and Pre-calculated Parameters

Prof. Fernando Silveira Madani, Mauá Institute of Technology

Mrs. Andressa Corrente Martins, Instituto Maua de Tecnologia

Leonardo Oneda Galvani, Instituto Maua de Tecnologia

Dr. Anderson Harayashiki Moreira, Instituto Mauá de Tecnologia

Prof. Alexandre Harayashiki Moreira M.S., Instituto Mauá de Tecnologia

Project of a Self-Balancing Robot Using a PIC Microcontroller

Prof. Fernando Silveira Madani, Mauá Institute of Technology

Mrs. Andressa Corrente Martins, Instituto Maua de Tecnologia

Julia Meneses Roberto, Instituto Mauá de Tecnologia

Marcelo Sacilotti Villas Boas

Dr. Anderson Harayashiki Moreira, Instituto Mauá de Tecnologia

Alexandre Harayashiki Moreira

T333 - Homer's Epiphany: Making STEM Elementary Woo-hoo!

11:00 A.M. - 12:30 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Ursula Nguyen, University of Nebraska - Lincoln

Incorporating engineering into elementary school education

Supporting Early Childhood Educators in Implementing and Adapting Research-based Engineering Activities Designed for Families (Fundamental, Diversity)

Dr. Gina Navoa Svarovsky, University of Notre Dame

Catherine Wagner, University of Notre Dame

Mia Lettau, University of Notre Dame

Kimberly Marfo, University of Notre Dame

Scott Pattison

Smirla Ramos-Montañez

Viviana López Burgos

Amy R. Corbett

Maria D. Quijano

Diana Contreras

Engineering 'STEAMs' Up Elementary Education: Impacts of the COVID-19 Pandemic (Fundamental)

Dr. Jennifer Ocif Love, Northeastern University

Students' Use of The Engineering Design Process to Learn Science (Fundamental)

Mr. Diallo Wallace, Purdue University

Prof. Tamara J Moore, Purdue University

Dr. Audeen W. Fentiman, Purdue University

Dr. Morgan M Hynes, Purdue University

T333B - Flaming Moe's Influence: Bio-Inspired STEM Explorations, Hot Stuff!

11:00 A.M. - 12:30 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Christina Alston, University of Colorado Boulder

Biological applications of engineering to inspire pre-college learners

Evaluation of an ErgoNomiCs and Human-Automation iNteracTion (ENCHANT) Summer Camp (Evaluation)

Jin Yong Kim, University of Michigan

Szu-Tung Chen, University of Michigan

Jacqueline Hannan, University of Michigan

Hannah Larson, University of Michigan

Hyesun Chung, University of Michigan

Tisha Jain, University of Michigan

Maria Fields

Sheryl S Ulin, University of Michigan

Leia Stirling, University of Michigan

X. Jessie Yang, University of Michigan

Improving Outreach Interactivity in the Virtual Environment – Evaluation of A Computer Vision Controlled Soft Robotic Hand to Broaden Participation in Bioengineering

Dr. Holly M. Golecki, University of Illinois Urbana-Champaign

Nathan Yoonsuh Chung, University of Illinois Urbana-Champaign

Thomas Tran, University of Chicago

Phillip Liang, University of Illinois Urbana-Champaign

A Summer Leader Experience for Rising High School Seniors – Integrating an Introduction to Environmental Science & Engineering

Kimberly Quell

Cristian Robbins, United States Military Academy

Kathryn Blair Newhart

Col. Andrew Ross Pfluger, United States Military Academy

Biologically Inspired Design in Introductory High School Engineering Design Courses: Student Expectations, Fixation and the Importance of Prior (Fundamental Research)

Dr. Abeera P. Rehmat, Georgia Institute of Technology

Dr. Michael Helms

Dr. Meltem Alemdar, Georgia Institute of Technology

Mr. Jeffrey H. Rosen, Georgia Institute of Technology

Dr. Marc Weissburg

Exploring High School Teachers' Perceptions of Biologically Inspired Design Integration in Engineering Classrooms (Fundamental Research)

Dr. Abeera P. Rehmat, Georgia Institute of Technology

Dr. Meltem Alemdar, Georgia Institute of Technology

Dyanne Baptiste Porter, Georgia Institute of Technology

Dr. Michael Helms

Mr. Jeffrey H Rosen, Georgia Institute of Technology

Dr. Marc Weissburg, Georgia Institute of Technology

T334A - Transcending Professional Shame and Cultures of Overwork in Engineering Education

11:00 A.M. - 12:30 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsors: Liberal Education/Engineering & Society Division (LEES); Educational Research and Methods Division (ERM); Faculty Development Division (FDD)

Moderators: James Huff, Harding University; Karin Jensen, University of Michigan; Jon Leydens, Colorado School of Mines

This highly interactive session is designed to provide engineering faculty with a space to explore barriers and opportunities to establishing a culture of wellness in engineering education. The goal is for faculty to end the session having identified viable strategies that promote individual resilience in the face of professional shame and a culture of overwork, and having concrete approaches for working toward systemic wellness and productivity.

Professional shame has been defined as a "painful emotional state that occurs when one perceives they have failed to meet socially constructed expectations or standards that are relevant to their identity in a professional domain" (Huff et al., 2021). Professional shame may be felt acutely in contexts in which this question is difficult to answer: When is X sufficient to meet or exceed expectations? (where X = service, research, etc.). A culture of overwork is defined both quantitatively and qualitatively, as weekly work hours of 50 or more (Cha, 2013), as well as a culture that values overwork—measured by high productivity expectations and long hours, with little consideration for human wellness. Such cultures are often a source of occupational segregation, a proximate cause of many forms of (among other forms of inequity) gender inequality (Cha, 2013). Research suggests that such cultures are sustained in STEM disciplines by perceptions of merit that are tied to work devotion, even though such cultures paradoxically perpetuate systemic inequity (Blair-Loy and Cech, 2022).

In this session, we explore the nexus of cultures of overwork and professional shame. We contend that the sociocultural realities of cultures of overwork and the individual experience of professional shame may perniciously build on one another. When we feel inadequate to meet the unending demands connected to social norms of overwork, we may respond to this unpleasant emotion by using overwork as a way to avoid dealing with the experience. In doing so, we may then replicate systemic cultural norms of overwork while struggling through our individual experiences of professional shame.

In this session, facilitators and participants will co-create a deliberate space in which we will, among other actions:

•Discuss and reflect on the dimensions of high-stress cultures and the impact on students and faculty.

•Take time to reflect on our own individual lived experiences, if applicable, of professional shame, with an eye toward identifying future wellness and resilience strategies.

•Inquire into whether professional shame intersects with

the culture of overwork—and if so, how.

•Brainstorm individual and systemic strategies to try to address the components of and issues associated with professional shame and/or a culture of overwork, in part by distinguishing between individual considerations and systemic narratives.

•Identify viable strategies that promote resilience and concrete approaches for working toward wellness and productivity.

Informed by cases from multiple studies led by the facilitators, we will guide session participants through exercises to examine cases where faculty have felt professional shame amid cultures of overwork. We will leverage these case-based scenarios to guide participants into recognizing and labeling their own experiences of professional shame, where applicable. Finally, we will collectively identify strategies with session participants on how we can resist cultures of overwork by practicing healthy strategies for living well through professional shame and in cultures of overwork, both as individuals and at more systemic levels.

T334B - Sociotechnical Integration and Programmatic Reform

11:00 A.M. - 12:30 P.M., A106, OREGON CONVENTION CENTER

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

Moderator: Stephanie Claussen, San Francisco State University

Liberal Education/Engineering & Society Division (LEES) Technical Session 5

The Initial Condition: Faculty Perspectives at the Beginning of a Department Change Effort

Dr. Lynne A. Slivovsky, California Polytechnic State University, San Luis Obispo

Dr. Lizabeth L. Thompson P.E., California Polytechnic State University, San Luis Obispo

Silvana McCormick, Redwood Consulting Collective

Dr. Jane L. Lehr, California Polytechnic State University, San Luis Obispo

Navigating Epistemological Borders: Considerations for Team Teaching at the Intersection of Humanities and STEM

Dr. Joshua M. Cruz, Texas Tech University

Dr. John Carrell, Texas Tech University

Michael Scott Laver, Rochester Institute of Technology

Extraordinary Engineering Impacts on Society: Over Seven Decades of Contributions from the National Science Foundation: A U.S. National Academy of Engineering Study

Ms. Casey Gibson, National Academy of Engineering

Dr. David A. Butler, National Academy of Engineering

Countering Passive Engagement: STS Postures and Analyzing Student Agency in Everyday Engineering

Dr. David Tomblin, University of Maryland, College Park

Dr. Nicole Farkas Mogul, University of Maryland, College Park

Christin J. Salley, University of Michigan

Sociotechnical Integration as Programmatic Foundation in Engineering: Curriculum Design and ABET Assessment Protocols

Dr. Chelsea Salinas, Colorado School of Mines

Dr. Dean Nieusma, Colorado School of Mines

T335 - Project-Based and Experiential Learning in Manufacturing

11:00 A.M. - 12:30 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Ismail Fidan, Tennessee Technological University; Irina Ciobanescu Husanu, Drexel University

Interactive and Web-based Animation Modules and Case Studies for Automated System Design

Dr. Sheng-Jen Hsieh, Texas A&M University

Dr. Susan Pedersen

Interdisciplinary Senior Design Project to Develop a Teaching Tool: Cobot Integrated Robotic Cell Learning Module

Dr. Yalcin Ertekin, Drexel University

Dr. Richard Chiou, Drexel University

Prof. Tzu-liang Bill Tseng, University of Texas at El Paso

Providing Research Experience to Undergraduate Students in NASA Summer Bridge and Internship Programs

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

Scott Bradshaw, Elizabeth City State University

Technical Training for Industry 4.0 Technologies: Low-Cost Gantry Candy Sorting System for Education and Outreach

Prof. Javaid S Siddiqi

Alan S Gandy

Dr. Sheng-Jen Hsieh, Texas A&M University

T335A - Navigating the Manufacturing Digital Transformation in Higher Education: The Purdue University Journey

11:00 A.M. - 12:30 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderator: Md Fashiar Rahman, University of Texas at El Paso

Speaker: Dr. Ragu Athinarayanan, Purdue University at West Lafayette (PPI)

Acknowledging the disparity in the pace of digital transformation in manufacturing and higher education institutions, in 2019 Purdue University embarked on a journey to fundamentally transform manufacturing on the West Lafayette campus. One of the primary goals of this initiative was aimed at bridging the growing disparity between emerging job roles and the skills needed in the future manufacturing workforce. Through a strategic alliance with key stakeholders such Microsoft Corp, Caterpillar, PTC, and Rockwell Automation, alongside partners such as the U.S. Department of Energy (USDOE) and the U.S. Smart Manufacturing Institute (CESMII), Purdue today is driving efforts in advancing education, research, and workforce development programs in smart manufacturing, impacting industries both at regional and national levels.

T338A - MECH - Technical Session 5: Virtual Learning and Technology Integration

11:00 A.M. - 12:30 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Fabian Sorce; Michael Cheadle, University of Wisconsin - Madison

This session explores the integration of virtual learning and technology in engineering education. Topics include virtual reality applications for machine design, AI in mechanical engineering with Amazon DeepRacer, bridging theory and application in system dynamics, oral exams for team projects, and addressing student difficulties in heat transfer concepts.

Designing and Evaluating Virtual Reality Applications for a Machine Design Course

Dr. Andrea Gregg, Penn State University

Dr. Daniel Cortes

Dr. Ibukun Samuel Osunbunmi, Penn State University

Dr. Laura L. Pauley P.E., Penn State University

Minkyung Lee, Penn State University

Incorporating Artificial Intelligence into Mechanical Engineering with Amazon DeepRacer

Dr. Pooya Niksiar, The Citadel

Blakeley Hunter Odom, The Citadel

Bridging Theory and Application: A Project in System Dynamics Course

Dr. Bo Yu, Utah Valley University

Using Oral Exams to Assess Individual Contributions on Team Projects

Dr. Matt Gordon, University of Denver

Irvin R Jones, University of Denver

Students' Difficulties in Understanding the Fundamental Concepts and Limitation of Application of Appropriate Equations in Solving Heat Transfer Problems

Dr. Amir Karimi, The University of Texas at San Antonio

Dr. Randall D. Manteufel, The University of Texas at San Antonio

T338B - MECH - Technical Session 6: Curriculum Development and Pedagogical Strategies

11:00 A.M. - 12:30 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Maria-Isabel Carnasciali, Merrimack College

This session focuses on enhancing engineering curricula and teaching methods. It will delve into supporting first-year students in statics, active learning strategies, incorporating engineering history, building interest in soft robotics, and integrating vendor resources into machine design textbooks.

Supporting First-year Students in an Introductory Mechanical Engineering Course to Succeed in Statics

Dr. Dave Kim, Washington State University, Vancouver

Lurana Crowley, Washington State University

Lessons Learned from the Use of Active Learning Strategies in Undergraduate Mechanical Engineering Courses

Dr. Jeffrey N Phillips, Hanover College

Pilot Study: Incorporating the Study of Engineering History into Engineering Courses

Dr. Gloria Guohua Ma, Wentworth Institute of Technology

Dr. Bo Tao, Wentworth Institute of Technology

WIP: A Model for Building Soft Robotics Knowledge and Interest: Student-Generated Learning Demonstrations

Dr. Cassandra Sue Ellen Jamison, Rowan University

Dr. Smitesh Bakrania, Rowan University

Dr. Mitja Trkov, Rowan University

Wei Xue, Rowan University

Augmenting Machine Design Textbooks by Integrating Vendor-supplied Resources

Dr. Rungun Nathan, Penn State University

T339 - Problem- and Project-based Learning in Engineering Mechanics

11:00 A.M. - 12:30 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderator: Julian Davis, University of Southern Indiana

Creating Statics and Solid Mechanics Lab Experiences from Open-Ended Design Briefs

Dr. Kathryn Hasz, Carthage College

Incorporating Design Projects to Facilitate Students' Understanding of Mechanical Vibrations

Dr. Xiaobin Le, Wentworth Institute of Technology

Link Element Design for a Landing-Gear Mechanism in a Statics and Mechanics of Materials Course

Dr. Amir H. Danesh-Yazdi, Rose-Hulman Institute of Technology

Dr. Aimee Monique Cloutier, Rose-Hulman Institute of Technology

Dr. Sean Moseley, Rose-Hulman Institute of Technology

Testing an EML Activity in Statics

Dr. Seyed Mohammad Seyed Ardakani, Ohio Northern University

Josh Wiseman, Ohio Northern University

T340 - Empowering Marginalized Voices in STEM: Perspectives and Initiatives

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Rubaya Rahat, Florida International University; Tryphenia Peele-Eady, University of New Mexico

This session delves into experiences and initiatives aimed at supporting marginalized students in architecture, engineering, and construction (AEC) fields, as well as STEM more broadly. Presentations will explore equity and resilience perceptions among marginalized AEC students in infrastructure projects, the funds of knowledge and social capital of migratory students in STEM, and the growth of graduate mentors through intensive research institutes. Additionally, ongoing work on mentoring and motivating first-generation undergraduate students in engineering will be discussed. Join us for an enriching discussion on empowering marginalized voices and fostering inclusivity in STEM education and research.

Exploring Equity and Resilience Perceptions of Marginalized Architecture, Engineering, and Construction (AEC) Students in Infrastructure Projects

Miss Rubaya Rahat, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Exploring Funds of Knowledge and Social Capital of Migratory Students in STEM: Revised Instrument

Ulises Juan Trujillo Garcia, Arizona State University

Growing Graduate Mentors Through a Summer Intensive Research Institute

Prof. Tryphenia B. Peele-Eady Ph.D., University of New Mexico

Prof. Tahira Reid, Penn State University

Dr. Lizandra C. Godwin, University of New Mexico

Work-In-Progress: Mentoring and Motivating First Generation Undergraduate Students in Engineering to Conduct Research and Persist in STEM

Dr. Adrian Rodriguez, The University of Texas at Austin

T341 - Multidisciplinary Engineering Division (MULTI) Technical Session 4

11:00 A.M. - 12:30 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Sara AlBanna; Trevor Mackesey, The Johns Hopkins University

Assessing Best Practices of a Multidisciplinary Experiential Learning Engineering Course

Nicholas Choi, University of California, Irvine

Prof. Liang Li Wu, University of California, Irvine

Beyond PBL: The Value of Stacking High-Impact Practices

Dr. Kimberly Lechasseur, Worcester Polytechnic Institute

Dr. Kristin Wobbe, Worcester Polytechnic Institute

Prof. Arthur C. Heinricher, Worcester Polytechnic Institute

Dr. Sarah E. Stanlick, Worcester Polytechnic Institute

Connecting the Dots: Professional Networking for Engineering Students

Dr. Jessica A. Kuczenski, Santa Clara University

Christelle Sabatier, Santa Clara University

Student-led Multi-Disciplinary Approach for the Design of Experiments in Engineering: A Methodology

Mr. Osama Desouky, Texas A&M University at Qatar

Dr. Yasser M. Al Hamidi, Texas A&M University at Qatar

Prof. Marwan K. Khraisheh, Texas A&M University at Qatar

Formula for Success for Interdisciplinary Initiatives

Dr. Paul Cameron Hungler P.Eng.,

Dr. Kimia Moozeh, Queen's University

T341A - Multidisciplinary Division Technical Session 11

11:00 A.M. - 12:30 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Mehrube Mehrubeoglu, Texas A&M University - Corpus Christi; Mary Realff

Innovative Mobility Program Series for Asian Students' Equitable Learning Opportunities Through Interdisciplinary Methodologies

Mr. Hiroyuki Ishizaki, Shibaura Institute of Technology

Dr. Maria Anityasari, Sepuluh Nopember Institute of Technology

Prof. Masaomi Kimura, Shibaura Institute of Technology

Faiqoh Agustin, University of Maryland, College Park

Evaluating Faculty Perceptions of Changes in Teaching and Students in Conjunction with the Extent of Compassionate Course Policies Post-Pandemic

Dr. Jennifer R. Brown, Montana State University, Bozeman

Dr. Leslie Hopkinson, West Virginia University

Dr. Saundra Johnson Austin, University of South Florida

Dr. Sara E. Wilson, The University of Kansas

Enhancing Chemistry Undergraduates' Peer Learning Collaboration and Curiosity Through Hands on Pedagogy

Mr. Temileye Omopariola Ibirinde, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Adebayo Iyanuoluwa Olude, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Dr. Niangoran Koissi, Morgan State University

Jiangnan Peng

Theorizing Neuro-Induced Relationships Between Cognitive Diversity, Motivation, Grit and Academic Performance in Multidisciplinary Engineering Education Context

Prof. Duy Duong-Tran, United States Naval Academy

Mr. Siqing Wei, Purdue University, West Lafayette

Li Shen, University of Pennsylvania

Dr. Matthew W. Ohland, Purdue University, West Lafayette

Role of Relevance in Professional Skills Application in Undergraduate Multi-Disciplinary Teams

Monika Tomar, Purdue University

Dr. Carla B. Zoltowski, Purdue University, West Lafayette

T345 - Engineering Physics and Physics Division (EP2D) Technical Session 1

11:00 A.M. - 12:30 P.M., C125, OREGON CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Baha Jassemnejad, ASRC Federal System Solutions, Federal Aviation Administration

Improving an Online and Self-instruction Course: Students Expectancy and Auto-regulation

Mr. Carlos Pineida, Universidad Andres Bello, Chile

Prof. Angeles Dominguez, Universidad Andres Bello, Chile

Perception Study of an Online Electricity and Magnetism Course for Working Students

Rodrigo Alonso Vergara, Universidad Andres Bello, Chile

Prof. Genaro Zavala, Universidad Andres Bello, Chile

Impact of PhET Interactive Simulation in a Hybrid Physics Course: The Case of Repeating Students

Johanna Antonia Perasso Adunce, Universidad Andres Bello, Chile

Prof. Angeles Dominguez, Universidad Andres Bello, Chile

AI-Based Concept Inventories: Using Cognitive Diagnostic Computer Adaptive Testing in LASSO for Classroom Assessment

Dr. Jason Morphew, Purdue University

Amirreza Mehrabi, Purdue Engineering Education

Ben Van Dusen, Iowa State University of Science and Technology

Jayson Nissen

Engaging University Students in Practical Physics Labs through Motivational Active Learning

Oluwapemiisin Gbemisola Akingbola, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Frank Efe, Morgan State University

Hannah Abedoh, Morgan State University

Arnesto Bowman

T346 - Software Engineering Division Business Meeting

11:00 A.M. - 12:30 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Software Engineering Division (SWED)

Moderators: Afsaneh Minaie, Utah Valley University; Mudasser Wyne, National University

T347 - Student Division Technical Session 5: Self-Efficacy

11:00 A.M. - 12:30 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Viyon Dansu, Florida International University; Daniel Adeniranye, Florida International University

The Effect of Ego Network Structure on Self-efficacy in Engineering Students

David Myers, Rowan University

Matthew Currey, Rowan University

Luciano Miles Miletta, Rowan University

Darby Rose Riley, Rowan University

Dr. Kaitlin Mallouk, Rowan University

First-Year Women's Interpretations of Self-Efficacy After an Ecological Belonging Intervention

Miss Karen Elizabeth Nortz, Cornell University

Dr. Allison Godwin, Cornell University

Dr. Linda DeAngelo, University of Pittsburgh

Danielle V. Lewis

Kevin Jay Kaufman-Ortiz, Purdue University

Charlie Díaz, University of Pittsburgh

Carlie Laton Cooper, University of Georgia

Differences in Attitudes and Self-efficacy Toward Programming of Students in Mechanical and Industrial Engineering Programs

Xinyi Ma, University of Toronto

Janet Lam, University of Toronto

Engineering Ideation Method Efficacy Study

Sierra Lynn Repp, University of Portland

Dr. Sean Lyle Gestson, University of Portland

Dr. Jacob P. Kimball, University of Portland

Examining Imposter Syndrome and Self-Efficacy Among Electrical Engineering Students and Changes Resulting After Engagement in Department's Revolutionary Interventions

Mr. Jeffrey Luke Morrison, University of South Florida

Dr. Chris S. Ferekides, University of South Florida

Dr. Dhinesh Balaji Radhakrishnan, Purdue University

T348 - Exploring Systems-Focused Engineering Education

11:00 A.M. - 12:30 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Systems Engineering Division (SYS)

Moderator: Bryan Watson, Embry-Riddle Aeronautical University - Daytona Beach

Speakers: Dr. Jenelle L. Piepmeier, United States Naval Academy; Dr. Ricardo Valerdi, The University of Arizona; Dr. William T. Scherer, University of Virginia; Dr. Jon Patrick Wade, University of California, San Diego; Beth A Plale

Systems Engineering is one of recognized disciplines accredited by ABET, a category in the US News Best Graduate School Rankings, and the professional society (INCOSE) has over 20,000 members. Yet, many schools

offer systems engineering through programs with a variety of names including System and Control Engineering, Systems Engineering and Design, Industrial and Systems Engineering, Systems Science and Engineering, and Robotics and Controls Engineering. Systems Engineering is offered at several institutions as a major, a minor, a master's, and a Ph.D. program (with various combinations of the four). This panel brings together chairs and key decision makers to discuss and explore the following. First, how is Systems Engineering manifested at their institution (i.e. major, minor; what type of students; program size)? What are the core tenets of Systems Engineering that they want their graduates to leave the program with? What industries or fields do they see their graduates entering? What are the innovative approaches their university uses in Systems Engineering Education? How does their program interact with various professional societies, other than ASEE, including INCOSE, PMI, ASME, IISE, and IEEE? Finally, how do they envision the future of Systems Engineering Education? Attendees to this panel will provide a broader view of how Systems Engineering Education is implemented as well as its future.

T350 - Two-Year College Potpourri

11:00 A.M. - 12:30 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Daniel Harbowy, Lane Community College

Variety of topics facing two-year colleges

Applying Project Management Skills to NSF ATE Funded Grants: A Roadmap to Success for First-time Grantees

Ms. Elaine L. Craft, Florence-Darlington Technical College

Pamela J. Silvers, Mentor-Connect/Florence Darlington

Buffy Quinn, University of Southern Mississippi

Engaging Community College Students in Artificial Intelligence Research through an NSF-Funded Summer Research Internship Program

Dr. Zhuwei Qin, San Francisco State University

Dr. Xiaorong Zhang, San Francisco State University

Dr. David Quintero, San Francisco State University

Dr. Wenshen Pong P.E., San Francisco State University

Yiyi Wang, San Francisco State University

Dr. Jenna Wong P.E., San Francisco State University

Dr. Robert Petrulis

Preparing a Two-Year College RED Proposal: Practices and Pitfalls

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

Dr. Indira Chatterjee, University of Nevada, Reno

Ms. Anne K. Flesher, Truckee Meadows Community College

Dr. Ann-Marie Vollstedt, University of Nevada, Reno

WIP: Barriers to Developing Computing Identity in Hispanic-serving Community College Introductory Artificial Intelligence Courses

Dr. Sarah L. Rodriguez, Virginia Polytechnic Institute and State University

Paul Charles Bigby, Virginia Polytechnic Institute and State University

Antarjot Kaur, Virginia Polytechnic Institute and State University

T352 - Engineering Empowered Communities: Place-Based Community Engaged Learning

11:00 A.M. - 12:30 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Lekshmi Sasidharan, University of Arkansas

Work in Progress: Designing a Community-led Bike Share Program for a Small U.S. City: Evidence from Fort Smith, Arkansas

Mr. Anindya Debnath, University of Arkansas

Dr. Suman Kumar Mitra, University of Arkansas

Developing a Community-Based, Environmental Justice-Oriented Curriculum for STEM Learning

Ms. Cindy Hua, Southern Methodist University

Jessie Marshall Zarazaga, Southern Methodist University

Empowering Students to Empower Communities: Research Translation in Graduate and Undergraduate Engineering Education

Dr. Juan C. Lucena, Colorado School of Mines

Mateo Rojas

Casey Gibson, National Academy of Engineering

Jaime Elizabeth Styer, Colorado School of Mines

Sofia Lara Schlezak, Colorado School of Mines

Mitigating Rural Flight: The Role of a Place-based Engineering Curriculum in Strengthening Community Assets (Traditional Research Paper)

Micaha Dean Hughes, North Carolina State University

Aaron Arenas, North Carolina State University

Dr. Latricia Walker Townsend, North Carolina State University

Dr. Tameshia Ballard Baldwin, North Carolina State University

[Traditional Research Paper] Engaging Students in Hands-On Experiences through Neighborhood Revitalization Projects

Miss Paula Alvarez Pino, University of Alabama, Birmingham

Dr. Fouad H. Fouad, University of Alabama, Birmingham

Prof. Andrew J. Sullivan, University of Alabama, Birmingham

Dr. Mona N Fouad

T357 - Faculty Development Division (FDD) Technical Session 5

11:00 A.M. - 12:30 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Sunay Palsole, Texas A&M University; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 5

A Cross-Institutional Study of Engineering Education Faculty Profiles

Mr. Gadhaun Aslam, University of Florida

Idalis Villanueva Alarcón, University of Florida

From Graduate Student to Academic Change Maker: Analyzing the Impact of the 'Making Academic Change Happen' Curriculum on Early Career Faculty and Academic Staff

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

Graduate Students' Development of Teaching Skills and Identity

Nishchal Thapa Magar, George Mason University

Dr. Jill K Nelson, George Mason University

Jessica Rosenberg

Marco Brizzolara, George Mason University

TA Training at Two R1 Institutions: A Comparative Analysis

Ms. Haley Briel, University of Wisconsin, Madison

Dr. Deesha Chadha

Chris Dakes, University of Wisconsin, Madison

Erica Jean Hagen, University of Wisconsin, Madison

Dr. James Iain Campbell, Imperial College London

Dr. Umang Vinubhai Shah

T359 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 9

11:00 A.M. - 12:30 P.M., A108, OREGON CONVENTION CENTER

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

STEM 4 Kids: Improving Gender Diversity in STEM through a Collegiate Student-led Organization

Dylan Oliver Scheller, Colorado State University

Julia Schimmels, Colorado State University

Dr. Jordan Jarrett, Colorado State University

Socio-technical and Culture-inspired Projects in Freshman Engineering Design Course Bring Context and Emotion to Learning

Dr. Raghu Pucha, Georgia Institute of Technology

Shivani Kundalia, Georgia Institute of Technology

Vijay Sreenivasan, Georgia Institute of Technology

Storytelling in Engineering as a Justice-centered Methodology

Robyn Mae Paul, University of Calgary

Student Anxiety and Belonging in a Mastery-Based-Learning Course

Meghan Williams, Elizabethtown College

Mark Brinton, Elizabethtown College

Dr. Kurt M Degoede, Elizabethtown College

Dr. Elizabeth Dolin Dalton

Supporting Engineering Students' Identity Work Regarding their Career Trajectories for a More Humanizing Engineering Future

Ms. Yume Menghe Xu, Tufts Center for Engineering Education and Outreach

T359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 15

11:00 A.M. - 12:30 P.M., B118, OREGON CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in

Education Division (EQUITY)

Redefining Engineering Literacy with Generative AI: Impacts and Implications for Diverse Languages and Expertise in Engineering Education

Dr. Clay Walker, University of Michigan

Work-in-Progress: Updated Progress Towards Understanding Perspectives among Neurodiverse Undergraduate Researchers in STEM

Prof. Jeffrey Halpern, University of New Hampshire

Mariah Arral, Carnegie Mellon University

Cassandra Michelle Lafleur, University of New Hampshire

Sarah Young

Elise Baribault, University of New Hampshire

Julianna Gesun, University of New Hampshire

Work in Progress: Understanding Differential Experiences of Identity in Computing Environments Using a Computing Privilege Inventory

Cecilé Sadler, Massachusetts Institute of Technology

Dr. Alicia Nicki Washington, Duke University

Shaundra Bryant Daily, Duke University

Work in Progress: Toward an Analytical Framework for Inclusive and Marginalizing Talk Moves in Engineering Student Homework Groups

Ms. Tyrine Jamella Pangan, Tufts University

Dr. Kristen B. Wendell, Tufts University

Work in Progress: The Role of Student Backgrounds in Understanding Racial Disparities in Computing

Fatima Glovena Fairfax, Duke University

Jabari Kwesi, Duke University

Elyse McFalls, Duke University

Reagan Lenora Razon, Duke University

Alexandra Thursland, Duke University

Dr. Crystal E. Peoples, Duke University

Shaundra Bryant Daily, Duke University

Dr. Alicia Nicki Washington, Duke University

Eduardo Bonilla-Silva, Duke University

Brean Elizabeth Prefontaine, Duke University

T372 - CMC Industry Day Panel Sessions: When Every Job is a Climate Job: The Role of Engineering Education

11:00 A.M. - 12:30 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Joel Clement, The Lemelson Foundation

Speakers: Jim Hanna, Microsoft Corporation; J'reyesha Brannon; Michelle Benavides; Roth Chan, Siemens Digital Industries Software; Yeswanth (Yash) Tadimalla, University of North Carolina at Charlotte; Joel Clement, The Lemelson Foundation

As the climate crisis pushes corporations to pursue net zero goals and institute practices that prioritize social and environmental impacts, employers are facing a growing green-skills gap. Join this panel discussion sponsored by the ASEE Corporate Member Council to explore how employers are reimagining every job as a climate job and what they need from engineering education today. A panel of global leaders in climate, job trends and engineering industry will discuss macro climate trends fueling industry hiring demands and ways that industry and higher education are collaborating to prepare engineering students.

T374 - Engineering Deans Council Diversity, Equity & Inclusion Committee Meeting (Deans Only)

11:00 A.M. - 12:30 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Deans Council (EDC)

EDC Diversity, Equity & Inclusion Committee Meeting (Deans Only)

T381 - Diversity, Equity, and Inclusion: 200

11:00 A.M. - 12:30 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Meagan C. Pollock, Engineer Inclusion; Prof. Andrea M. Ragonese, Pennsylvania State University

Diversity, Equity, and Inclusion starts with us, but individual awareness and action are not enough. In order to transform our institutions and organizations to be more diverse, equitable, and inclusive, we must understand the larger systems we construct, operate within, and sustain. In this session, we will introduce a systems-thinking framework through case-study analysis to assist us in identifying organizational successes and opportunities for improvement as we become catalysts for institutional change. We aim to raise the collective awareness of institutional biases to promote shared accountability to create equitable engineering education communities at every organizational level.

T381B - Safe Zone Ally Training - Level 2

11:00 A.M. - 12:30 P.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Safe Zone Workshops are interactive, research-informed workshops for students, faculty, and the professional community, during which participants will 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.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. 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, please visit https://lgbtq.asee.org.

T386 - ASEE Fellows Lunch (ASEE Fellows Only)

11:00 A.M. - 12:30 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Academy of Fellows

Free ticketed event

T394A - SPONSOR TECH SESSION: GenAI for MATLAB-based Curriculum Design, Presented by MathWorks

11:00 A.M. - 12:30 P.M., B110 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

In this session, we will explore the transformative power of generative artificial intelligence (GenAI) in engineering education, showcasing the experimental tools that MathWorks has made available for educators and students to explore the use of Generative AI with MATLAB. We will summarize what we've learned so far about promising educator use cases of GenAI. We'll review concerns about academic integrity, dive into the potential of Custom GPTs for creating instructional content and student assessments, and share insightful customer presentations that demonstrate the practical application of these technologies in teaching. We conclude with resources you can use to begin experimenting with GenAI with MATLAB and opportunities to share your feedback to help guide our GenAI plans to enhance engineering education.

T394B - SPONSOR TECH SESSION: Presented by The Boeing Company

11:00 A.M. - 12:30 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

T394C - SPONSOR TECH SESSION: From Lab to Lectern: Transforming Grad Students into Effective Communicators, Presented by Oregon State University

11:00 A.M. - 12:30 P.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join Oregon State Engineering and learn about our annual program to transform graduate student engineers into confident and effective communicators. We'll discuss how we guide students through creating, practicing, and delivering compelling research talks supported by a cohort experience and individual presentation coaching. The experience equips them with the vital communication skills needed to share the impact of their work throughout their careers.

Presenter: Glencora Borradaile, Ph.D., Associate Dean for Graduate Programs, Oregon State University

T469A - ASEE Bistro Sponsored by Great Minds in STEM

12:30 P.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T469B - Free Time - Lunch Available for Purchase in the Exhibit Hall

12:30 P.M. - 1:30 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Take advantage of this free time to peruse the exhibits and poster papers, as well as enjoying the different tasty fare Portland has to offer.

Menu items include:

Portland Roasting I

Portland Roasting II

DragonFire Wok

Dragon Boat Grill

EA Pacific Crust Pizza Co

Ginkoberry Marketplace

EA Bento

Mac + Cheese Cart

T469C - Exhibit Hall & Poster Board Viewing Open

12:30 P.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

T401 - Aerospace Division (AERO) Business Meeting

1:30 P.M. - 3:00 P.M., COLUMBIA 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Aerospace Division (AERO)

T403 - Biological and Agricultural Engineering Division Business Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Biological and Agricultural Engineering Division (BAE)

Division Business Meeting

T404 - Biomedical Engineering Division (BED) Postcard Session (Best of WIPs)

1:30 P.M. - 3:00 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Alexis Ortiz-Rosario, The Ohio State University; Roza Vaez Ghaemi, University of British Columbia, Vancouver; Antarjot Kaur, Virginia Polytechnic Institute and State University

Best Works-in-Progress (WIP) posters for the Biomedical Engineering Division. Authors will present in five-minute

intervals followed by individual Q&As.

Work in Progress: A Multi-level Undergraduate Curricular Approach to Exploring Health Equity in Biomedical Engineering Solutions

Jennifer M. Hatch, Indiana University-Purdue University Indianapolis

Dr. Steven Higbee, Indiana University-Purdue University Indianapolis

Ms. Danka Maric, Indiana University-Purdue University Indianapolis

Dr. Sharon Miller, Purdue University

Work in Progress: Evaluating the Impact of Student Cognitive and Emotional Responses to Real-time Feedback on Student Engagement in Engineering Design Studios

Dr. Stephanie Fuchs, Cornell University

Dr. Alexandra Werth, Cornell University

Prof. Jonathan T. Butcher, Cornell University

Work-in-Progress: Development of a Domain-Agnostic Standards Curriculum in Partnership with a Medical Device Manufacturer

Dr. Michael Gordon Browne, The University of Illinois Chicago

Dr. Anthony E. Felder, The University of Illinois Chicago

Adrian P. Defante

Work in Progress: Factors Influencing Career Choice and Success in Undergraduate BME Students

Dr. Tyler George Harvey, Clemson University

Work in Progress: Development of a Medical Devices Course for Sophomore Biomedical Engineering Undergraduate Students

Dr. Sarah Ilkhanipour Rooney, University of Delaware

Mrs. Shameeka M. Jelenewicz, University of Delaware

An Introductory-level, Student-taught Biomedical Neuroengineering Course for 1st year Undeclared Engineering Undergraduate Students

Nyota Prakash Patel, University of Virginia

Deepika Sahoo, University of Virginia

Dr. Shannon Barker, University of Virginia

T405A - WIP: Classroom Innovations

1:30 P.M. - 3:00 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Adrienne Minerick, Michigan Technological University; Adam Melvin, Clemson University

Work In Progress: Enhancing Thermal and Fluids Laboratory Learning through the Integration of the Heat Exchanger Module (HEM)

Benjamin Miles Phillips, Baylor University

Alexandre Yokochi, Baylor University

Dr. Anne Marie Spence, Baylor University

Work-in-Progress: Creating Recycled Products to Incorporate Sustainability Projects in the Undergraduate Chemical Engineering Laboratories

Dr. Carlos Landaverde Alvarado, University of Texas at Austin

Emily Mellen, University of Texas at Austin

Amanda Nguyen, University of Texas at Austin

Work-in-progress: Elevating Chemical Engineering Outreach Through Collaborative Efforts Showcasing Fluid Flow Experiments

Dr. Neha B. Raikar, University of Maryland, Baltimore County

Dr. Fernando Mérida, University of Florida

Work-in-Progress: Chemical Engineering Students' Representational Fluency when Designing in the Context of Fluids Mechanics

Dr. Ruben D. Lopez-Parra, University of New Mexico

Dr. Vanessa Svihla, University of Texas at Austin

Work in Progress: Building Conceptual Understanding in the Mass and Energy Balances Course through Qualitative Analysis and Interactive Demonstrations

Dr. Sakul Ratanalert, Columbia University

Mr. Franklin Hsu, The Johns Hopkins University

Dr. Nagma Zerin, The Johns Hopkins University

Work-in-Progress: Introduction of a Computational TA Role to Support Undergraduate Training in Computational Thinking Strategies for Chemical Engineering Applications

Dr. Leah Granger, North Carolina State University

Mr. William Buren Parker, North Carolina State University

Dr. Laura Bottomley, North Carolina State University

T405B - Cultivating Community, Wellness, and Character Development

1:30 P.M. - 3:00 P.M., F152, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Betul Bilgin, The University of Illinois at Chicago; Chris Barr, University of Michigan

Use of Top Hat Questions to Build Classroom Community and

Improve the Student-Teacher Relationship

Dr. Matthew Cooper, North Carolina State University

A Wellness Course for Engineering Students

Glaucia Prado, University of California, Davis

Dr. Jason White, University of California, Davis

Sara Sweeney, University of California, Davis

Does Endorsement of Masculine Ideals Predict Sense of Belonging and Identity over Performance and Peer interactions?

Dr. Stephanie Butler Velegol, Penn State University

Katharine Getz, Penn State University

Dr. Mechteld Veltman Hillsley, Penn State University

Reflections on a "Math Disaster": the Role of Instructor Confusion in the Classroom

Dr. Lorena S. Grundy, Tufts University

Material and Energy Balances and Character Development: An Investigation of Student Responses to Intentional Virtue Education in a Traditional Chemical Engineering Course

Dr. Victoria E Goodrich, University of Notre Dame

T406 - Civil Engineering Division (CIVIL) Technical Session - Effective Teaching 2

1:30 P.M. - 3:00 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Charles Riley, Oregon Institute of Technology; Morgan Broberg, Purdue University at West Lafayette (COE)

Does Congruency Between Homework and Test Problems Improve Test Performance?

Dr. Jacqueline Jenkins, Cleveland State University

Equation Sheets: Are We Helping or Hurting our Students?

Lt. Col. William Graves, United States Military Academy

Dr. Gary A. Jordan, United States Military Academy

Incorporating Evidence-based Teaching Practices in an Engineering Course to Improve Learning

Julie Anne Wildschut, Calvin University

Using Start-Up Questions to Effectively Prepare Engineers for the Fundamentals of Engineering Exam

Dr. Matthew K. Swenty P.E., Virginia Military Institute

Dr. Benjamin Z. Dymond, Northern Arizona University

Dr. Kacie Caple D'Alessandro, Virginia Military Institute

Dr. Joshua T. Hewes P.E., Northern Arizona University

Dr. Robin Tuchscherer, Northern Arizona University

Dr. Rebekah Martin, Virginia Military Institute

Dr. Charles D. Newhouse P.E., Virginia Military Institute

What's in a Grade? Current Practices and Strategies to Evaluate Learning in Engineering Courses

Dr. Scott R. Hamilton P.E., York College of Pennsylvania

Dr. Camilla M. Saviz P.E., University of the Pacific

Dr. David A. Saftner, University of Minnesota Duluth

Dr. Tanya Kunberger P.E., University of Pittsburgh at Johnstown

T407 - College Industry Partnerships Division (CIP) Technical Session 1

1:30 P.M. - 3:00 P.M., B119, OREGON CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

Moderator: Linda Thurman, University of North Carolina at Charlotte

Industry Perspectives on Professional and Design Skills of Bioengineering Senior Students

Dr. Reem Khojah, University of California, San Diego

Dr. Alyssa Catherine Taylor, University of California, San Diego

Dr. Isgard S. Hueck, University of California, San Diego

Innovative Professional Master's Capstone to Bridge the Gap Between Academia and Industry

Dr. Nga Hin Ben Fong, Purdue University at West Lafayette (COE)

Dr. Patrick Brunese, Purdue University at West Lafayette (COE)

Preparing Students for Successful Industrial Collaborations in Engineering (Work in progress)

Mr. Chun Kit Chan, The University of Hong Kong

Dr. H.H. Cheung, University of Hong Kong

Dr. Match Ko, University of Hong Kong

Dr. Chun Kit Chui, University of Hong Kong

Dr. Lei Yang, The University of Hong Kong

Understanding the Impact of Industry Sponsorship for Student Teams: A Case Study

Dr. Kaitlin Tyler, ANSYS, Inc.

Dr. Bridget Ogwezi, ANSYS, Inc.

T408 - Cybersecurity Topics

1:30 P.M. - 3:00 P.M., B117, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Walter Schilling, Milwaukee School of Engineering

The papers in this session focus on teaching and raising awareness about cybersecurity.

A Novel Scavenger Hunt Activity for Increasing Student Engagement in Cryptography Coursework

Dr. Heena Rathore, Texas State University

Dr. Henry Griffith, San Antonio College

Exploring Cybersecurity Hands-on Labs in Pervasive Computing: Design, Assessment, and Reflection

Prof. Anyi Liu, Oakland University

Dr. Bruce R. Maxim, University of Michigan, Dearborn

Xiaohong Yuan, North Carolina A&T State University

Dr. Yuan Cheng, Grand Valley State University

Increasing Faculty Cybersecurity Experience through Externship Experience

Dr. Walter W. Schilling Jr., Milwaukee School of Engineering

QCTaaS (Quality Cloud Teaching as a Service): An Immersive Framework for Teaching Cloud Computing for Cybersecurity Majors

Dr. Mahmoud K. Quweider, The University of Texas Rio Grande Valley

Dr. Liyu Zhang

Alexis Aaron De La Cruz

T408B - Teaching with ML and Generative AI

1:30 P.M. - 3:00 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Debarati Basu, University of North Carolina at Charlotte

The papers in this session present results from deploying machine learning and artificial intelligence tools in support of teaching engineering, computing, and mathematics topics.

ChatGPT and Me: Collaborative Creativity in a Group Brainstorming with Generative AI

Mr. Han Kyul Kim, University of Southern California

Aleyeh Roknaldin, University of Southern California

Shriniwas Prakash Nayak, University of Southern California

Mr. Xiaoci Zhang, University of Southern California

Muyao Yang, University of Southern California

Marlon Twyman, University of Southern California

Angel Hsing-Chi Hwang, Cornell University

Dr. Stephen Lu, University of Southern California

Integrating ChatGPT in an Introductory Engineering Undergraduate Course as a Tool for Feedback

Dr. Anthony Cortez, Point Loma Nazarene University

Dr. Paul Daniel Schmelzenbach, Point Loma Nazarene University

Optimizing Database Query Learning: A Generative AI Approach for Semantic Error Feedback

Dr. Abdussalam Alawini, University of Illinois Urbana-Champaign

Abdulrahman AlRabah, University of Illinois Urbana-Champaign

Sophia Yang, University of Illinois Urbana-Champaign

WIP: AI-based Sentiment Analysis and Grader Enhancements

Mr. Bobby F. Hodgkinson, University of Colorado Boulder

Nathan Eric Whittenburg, University of Colorado Boulder

The Seamless Integration of Machine Learning Education into High School Mathematics Classrooms

Hyunju Oh, University of Florida

Rui Guo, University of Florida

Dr. Wanli Xing, University of Florida

Zifeng Liu, University of Florida

Yukyeong Song, University of Florida

Chenglu Li, The University of Utah

T409B - Construction Division Business Meeting

1:30 P.M. - 3:00 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Construction Engineering Division (CONST)

Come meet with other construction faculty, hear our best paper award, and make plans for our next conference!

T4101 - ASEE's Codes of Ethics and Conduct: Reflecting Community Values

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Professional Interest Council (PIC)

Speaker: Prof. Rebecca A. Bates, Minnesota State University, Mankato

Join us to discuss ASEE's Code of Ethics for Engineering Educators, the Volunteer Code of Ethics, and the Code of Conduct for Activities and Events. This special session will be led by members of ASEE's Ethics Committee and will provide an opportunity for feedback about the Codes and how they align with our community values and expectations. We will consider whether engineering education is a formal discipline and profession, and what that might mean for ASEE's codes. Details about the codes can be found at https://www.asee.org/about-us/what-we-do/ethics-policies-and-resources.

T411 - Cooperative and Experiential Education Division (CEED) Technical Session 2

1:30 P.M. - 3:00 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Bernadette Friedrich, Michigan State University

This session includes papers that look at the impact of experiential education through experiences beyond the work environment.

How SocioTechnical Learning Broadens Participation in STEM by Developing Self-Efficacy within Work-Based Experiences: Work in Progress

Ms. Cynthia Kay Pickering, Arizona State University

Dr. Erik Fisher, Arizona State University

Promoting Undergraduate Student Self-Efficacy in Research through Participation in a Multidisciplinary Science Communication Fellowship

Miss Kamryn G. Zachek, University of New Mexico

Prof. Anjali Mulchandani, University of New Mexico

Sydney Donohue Jobe, University of New Mexico

Work In Progress: Influences of Team-Based Activities on Engineering Students' Identities and Careers in University and Co-op Settings

Fatemeh Mirzahosseini Zarandi, University of Cincinnati

Dr. David Reeping, University of Cincinnati

Examining the Evolution of Research Self-efficacy in Undergraduate Students in the Natural Hazards Engineering

Dr. Karina Ivette Vielma, University of Texas at San Antonio

Dr. Robin Lynn Nelson, University of Texas at San Antonio

Dr. JoAnn Browning P.E., The University of Texas at San Antonio

T413 - Design in Engineering Education Division (DEED) - Tools for Planning and Evaluation of Design Projects

1:30 P.M. - 3:00 P.M., F150, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Corey Kado, Florida Polytechnic University

A Weighted Design Matrix Approach for Informing Digital vs. Physical Prototyping Options

Dr. Daniel D. Jensen, Westmont College

Elijah Cicileo

Jonah Kai Swanson

Gregory Reich

The Role of Spatial Skills and Sketching in Engineering Design Problem Solving

Mr. Gibin Raju, University of Cincinnati

Dr. Sheryl A. Sorby, University of Cincinnati

Investigating the Use of Concept Maps and Graph-Based Analysis to Evaluate Learning

Dr. Apurva Patel, University of Texas at Dallas

Prof. Joshua D. Summers, University of Texas at Dallas

Mr. Pavan Prasanna Kumar, University of Texas at Dallas

Shanae Lekeisha Edwards, University of Texas at Dallas

Design Tool Subway Map for Undergraduate Design Projects

Dr. Megan Hammond, University of Indianapolis

Dr. Kenneth Reid, University of Indianapolis

Dr. Joseph B. Herzog, University of Indianapolis

An Uncharted Territory: Removing Dependency on Grading Rubric in Senior Design Projects

Dr. Saeedeh Ziaeefard, The Ohio State University

T413A - Design in Engineering Education Division (DEED) Business Meeting

1:30 P.M. - 3:00 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Corey Schimpf, University at Buffalo, The State University of New York

The annual business meeting for the Design in Engineering Education Division of ASEE. All current DEED members are encouraged to attend. Those that are not part of DEED but interested in joining and learning how to contribute to the division are especially encouraged to attend.

T414A - Educational Research and Methods Division (ERM) Technical Session 13

1:30 P.M. - 3:00 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Yljing Stehle, Union College

Appreciative Inquiry as an Intervention for Equity-Centered Engineering Education Research and Praxis

Ann Shivers-McNair, University of Arizona

Gimantha N. Perera, North Carolina State University

Hannah Budinoff, The University of Arizona

Dr. Vignesh Subbian, The University of Arizona

Encouraging STEM Careers among Minoritized High School Students: The Interplay between Socio-Environmental Factors and Other Social Cognitive Career Constructs

Dr. Rachel E. Durham, Notre Dame of Maryland University

Prof. Michael L. Falk, The Johns Hopkins University

Alexis Daniels, The Johns Hopkins University

Allison Reigel, The Johns Hopkins University

Ms. Alisha Nicole Sparks

Margo Williams, The Johns Hopkins University

Dr. Emily J. Yanisko, American University

Engineering Learning among Black and Latinx/e/a/o Students: Considering Language and Culture to Reengineer Learning Environments

Dr. Greses Perez, Tufts University

Lise Clara Mabour, Tufts University

G. R. Marvez, Tufts University

Ymbar Isaias Polanco Pino, Tufts University

Faculty-Student Interactions as Experienced by Black Engineering and Computer Science Students

Kyle Shanachilubwa, Harding University

Dr. James L. Huff, Harding University

Dr. Amy L. Brooks, University of Pittsburgh

Latino/a/x Engineering Students and Nepantla: A Multi-Case Study within the US Southwest

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Social Capital and Persistence in Computer Science of Google's Computer Science Summer Institute (CSSI) Students

Ms. Marjan Naghshbandi, University of Toronto

Sharon Ferguson, University of Toronto

Dr. Alison Olechowski, University of Toronto

T414B - Educational Research and Methods Division (ERM) Technical Session 14

1:30 P.M. - 3:00 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: S. Patrick Walton, Michigan State University

A Novel Research Design: Using Multilevel Discrete-Time Survival Analysis to Investigate the Effect of Calculus I on Engineering Student Persistence

Hayaam Osman, Purdue University

Dr. Matthew W. Ohland, Purdue University

How Should Teaching Assistants Teach? Differences in Student Perspectives by Gender, Race/Ethnicity, and Country of Origin

Dr. Denise Wilson, University of Washington

Neha Kardam, University of Washington

Investigating Motivation and Self-Regulated Learning for Students in a Fundamental Engineering Course

Sierra Outerbridge, University of Central Florida

Michelle Taub, University of Central Florida

Dr. Marino Nader, University of Central Florida

Dr. Sudeshna Pal, University of Central Florida

Dr. Ricardo Zaurin, University of Central Florida

Prof. Hyoung Jin Cho, University of Central Florida

Comparative Analysis of Traditional Instruction and POGIL: A Student-Centered Learning Approach in Civil Engineering

Dr. Malliga P, National Institute of Technical Teachers Training and Research, Chennai

Dr. Dinesh Kumar, KSA

Dr. Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research Chennai

Dr. Shanmuganeethi Velu P.E.

Arivalagan S

Value and Interest: Do They Really Make a Difference in Student Engagement

Mr. Cory Lam, University of Washington

Dr. Denise Wilson, University of Washington

T414C - Educational Research and Methods Division (ERM) Technical Session 15

1:30 P.M. - 3:00 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Trevor Franklin, Cornell University

An Emerging Methodological Toolkit to Support Design of Problem-Based Learning Environments: Connecting Problem Characteristics and Knowledge Types

Dave Mawer, University at Buffalo, The State University of New York

Dr. Andrew Olewnik, University at Buffalo, The State University of New York

Lisa Retzlaff, North Carolina State University

Dr. Laine Schrewe, Otterbein University

Scott Ferguson, North Carolina State University

Navigating Real-World Complexity: A Guide to Multiple Case Studies in Engineering Education Research

Camila Andrea Olivero-Araya, The Ohio State University

Mrs. Monique S. Ross, The Ohio State University

Predictors and Mediators of Conceptual Change: A Systematic Literature Review

Mr. Olanrewaju Paul Olaogun, University of Georgia

Dr. Nathaniel Hunsu, University of Georgia

Promoting Equity and Cognitive Growth: The Influence of an Authentic Learning Assignment on Engineering Problem-Solving Skills

Dr. Boni Frances Yraguen, Vanderbilt University

Elisa Koolman, University of Texas at Austin

Roxanne Moore, Georgia Institute of Technology

Dr. Katherine Fu, University of Wisconsin

Validating the Use of Epistemic Network Analysis to Describe the Nature of Learning in Practice-Based Learning Settings

Dr. Lauren Singelmann, Minnesota State University, Mankato

Dr. Darcie Christensen, Minnesota State University, Mankato

Dr. Elizabeth Pluskwik, Minnesota State University, Mankato

Dr. Yuezhou Wang, Minnesota State University, Mankato

Exploring Undergraduate Engineering Students' Perspectives on Laboratory Learning: Comparing Hands-On, Remote, and Virtual Environments

Dr. Yanyao Deng, University of Exeter

Dr. Ibrahim H. Yeter, Nanyang Technological University

T415 - Innovative Strategies for Enhancing Engineering Education Across Diverse Learning Environments

1:30 P.M. - 3:00 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Yang Shao, University of Illinois at Urbana - Champaign; Rajani Muraleedharan, Saginaw Valley State University

This session addresses enhancing engineering education across diverse environments, featuring discussions on specialized literacy, inclusive methodologies, and comparative performance analysis.

A Semiconductor Knowledge and Literacy Test for High School and Community College Teachers

Haniye Mehraban, Oklahoma State University

Dr. Jennifer Dawn Cribbs, Oklahoma State University

Dr. John Hu, Oklahoma State University

Bridging the Gap: Exploring Semiconductors Exposure and Motivation among Multidisciplinary Engineering Students

Dr. Lilianny Virgüez, University of Florida

Dr. Debarati Basu, Embry-Riddle Aeronautical University

Gloria J. Kim, University of Florida

Dr. Sreyoshi Bhaduri, ThatStatsGirl

Enhancing Pathways From Community Colleges to Four-Year Schools With a Circuits Course and Lab for Distance Students

Rowdy Sanford, University of Idaho

Dr. Joe Law, University of Idaho

Dr. John Crepeau, University of Idaho

Leveraging the CARE Methodology to Enhance Pedagogical and Institutional Support for Blind or Low-Vision (BLV) Learners in Electrical and Computer Engineering (ECE)

Aya Mouallem, Stanford University

Trisha Kulkarni, Stanford University

Dr. Sheri D. Sheppard, Stanford University

Comparison of Engineering and Computer Science Student Performance and Opinions of Instruction of a Microcomputers Course Across Delivery Formats

Dr. Todd Jeffrey Freeborn, The University of Alabama

T415B - Integrating Hands-On Technology and Project-Based Learning in Engineering Education

1:30 P.M. - 3:00 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Denise Thorsen, University of Alaska Fairbanks; Saharnaz Baghdadchi, University of California, San Diego

This session showcases the integration of hands-on technology and project-based learning in engineering education, highlighting interactive tools like Tinkercad and MATLAB.

Project-Based Learning: Wireless Sensor Node Project for 2nd-Year ECE Students

Mr. Shuxiang Yu, Virginia Polytechnic Institute and State University

Dr. Tyler Milburn, Virginia Polytechnic Institute and State University

Prof. William T. Baumann, Virginia Polytechnic Institute and State University

Tinkercad—Not Just for Kids

Prof. Branimir Pejcinovic, Portland State University

Dr. Melinda Holtzman, Portland State University

MATLAB Tool Allowing Wireless Control of Arduino Robot for Early Introduction of Robotics into Curriculum

Mr. Connor Daniel Olsen, University of Utah

Dr. Amy Verkler, University of Utah

Jacob A. George, University of Utah

Daniel S. Drew, University of Utah

Wireless Environmental Sensing Electronics Framework Development with Successive Capstone Projects

Prof. David Burnett, Portland State University

Plug-n-Play: A Flexible Approach to Active Learning

Dr. Wei Wu, Berea College

Scott Heggen, Berea College

Emmaley Clare Powell

Oussema Khlifi

Trayvion Jalan Newton

T4195A - DSA Technical Session 4

1:30 P.M. - 3:00 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderator: Ilya Grinberg, SUNY Buffalo State University

Utilizing Data Science for Learning and Course Development

Unfettered ChatGPT Access in First-Year Engineering: Student Usage & Perceptions

Dr. Duncan Davis, Northeastern University

Dr. Nicole Alexandra Batrouny, Northeastern Univeristy

Dr. Adetoun Yeaman, Northeastern University

Continuous Speech Emotion Recognition from Audio Segments with Supervised Learning and Reinforcement Learning Approaches

Mr. Fengbo Ma, Northeastern University

Prof. Xuemin Jin, Northeastern University

A Preference-Based Faculty-Assignment Tool for Course Scheduling Optimization

Dr. Sami Khorbotly, Valparaiso University

Daniel White, Valparaiso University

Effectiveness of a Semi-Mastery-Based Learning Course Design

Dr. Galen I. Papkov, Florida Gulf Coast University

Dr. Jiehong Liao, Florida Gulf Coast University

T420 - Increasing Engagement in Engineering Ethics Education

1:30 P.M. - 3:00 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Larry Strawser, The Johns Hopkins University; Amirreza Mehrabi, Purdue Engineering Education

Increasing Engagement in Engineering Ethics Education

A Directed Question-Based Framework for Teaching and Learning Ethics: A Tool but also a Memorable Framework that Students Can Take Forward into their Professional Practice

Dr. Udayan Das, Saint Mary's College of California

Advancing Engineering Ethics Education Using Active Learning

Dr. Rajani Muraleedharan, Saginaw Valley State University

Thomas Wedge, Saginaw Valley State University

Erik Trump, Saginaw Valley State University

Enhancing Student Engagement with Introductory Engineering Ethics Using a Blended Approach of Microlearning and Case Studies

Prof. John R. Donald Ph.D., P.Eng., University of Guelph

Ms. Kylie Chau Vuu, AECOM Canada Ltd.

Kimberly Mary Levere, University of Guelph

Cameron Farrow, University of Guelph

Pedagogy of Engagement: Exploring Three Methods in an Engineering Ethics and Professionalism Course

Jessica Wolf, University of British Columbia

Gayatri Gopalan, University of British Columbia

Dr. Christoph Johannes Sielmann, P.Eng., University of British Columbia

T420B - Broader Approaches to Engineering Ethics Education

1:30 P.M. - 3:00 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Sergio Guillen, University of Virginia; Quamrul Mazumder, University of Michigan - Flint

Broader Approaches to Engineering Ethics Education

Connecting Engineering Ethics with a Shared Curriculum

Dr. Markus D. Ong, Whitworth University

Dr. Kamesh Sankaran, Whitworth University

Making Room for Followers: A Grounded Theory Study of Ethical Followership Among Professional Engineers

Dr. Kyle Payne, Collins Engineers

On the Challenges of Transferring Teaching Practices in Engineering Ethics and an Asset-Based Approach to Developing Ethics Instruction

Bono Po-Jen Shih, Pennsylvania State University

Dr. Benjamin Daniel Chambers, Virginia Polytechnic Institute and State University

Matthew James P.E., Virginia Polytechnic Institute and State University

Conceptualizing the Institutional Transformation Approach to STEM Ethics Education: An Exploratory Study of NSF-Funded Institutional Transformation Projects

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

Dr. Rockwell Franklin Clancy III, Virginia Polytechnic Institute and State University

Lisa M. Lee, Virginia Polytechnic Institute and State University

T421 - Engineering Libraries Division (ELD) Technical Session 2

1:30 P.M. - 3:00 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Yuqi He, San Jose State University

A Qualitative Analysis of Library Chat Reference Transcripts: Examining Engineering Student Queries within the Information Seeking Process

Mr. Eric Prosser, Arizona State University

Engineering Data Repositories and Open Science Compliance: A Guide for Engineering Faculty and Librarians

Adam Lindsley, Oregon State University

Dr. Shalini Ramachandran, Loyola Marymount University

Clara Llebot, Oregon State University

Sheree Fu, California State University, Los Angeles

Insights and Lessons Learned from Engineering OER Authors

Dr. Jacob Preston Moore, Pennsylvania State University, Mont Alto

Dr. Daniel W. Baker PhD, P.E., Colorado State University

Introducing Students to Research and Reproducibility with Open Science Tools

Dr. Chasz Griego, Carnegie Mellon University

Cheng Zhang, Carnegie Mellon University

Wenchao Hu, Carnegie Mellon University

Ziyong Ma, Carnegie Mellon University

Andy Ouyang, Carnegie Mellon University

T423 - Experiential Learning in ET Programs II

1:30 P.M. - 3:00 P.M., A107, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Jyhwen Wang, Texas A&M University; Reg Pecen, Sam Houston State University

Experiential Learning for the Mechatronics Workforce in Upper Peninsula of Michigan

Prof. Aleksandr Sergeyev, Michigan Technological University

Dr. David Michael Labyak, Michigan Technological University

Vinh Nguyen, Michigan Technological University

Paniz Khanmohammadi Hazaveh, Michigan Technological University

Dr. Linda Wanless, Michigan Technological University

Dr. Mark Bradley Kinney, West Shore Community College

Prof. Scott A. Kuhl, Michigan Technological University

Evaluating Project Management Skill Development in Engineering and Agricultural Curricula

Paul Davidson, University of Illinois at Urbana - Champaign

Travis Johnson, University of Illinois at Urbana - Champaign

Dr. Molly H. Goldstein, University of Illinois at Urbana - Champaign

Brandon Hollenback, University of Illinois at Urbana - Champaign

Engineering Technology Students and Faculty—Bridging Perspectives

Dr. Anne M. Lucietto, Purdue University

Dyane Roesel, Purdue University

Real-Time Evaluation of Energy Efficiency of Hydraulic Systems

Dr. Alamgir A. Choudhury, Western Michigan University

Dr. Jorge Rodriguez P.E., Western Michigan University

Preliminary Investigation of Dimensional Accuracy of 3D-Printed PLA—A Project-Based Learning Experience (WIP)

Dr. Ahmad Fayed, Southeastern Louisiana University

T423C - Innovative Pedagogical Strategies II

1:30 P.M. - 3:00 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderators: Barry Lunt, Brigham Young University; Ahmed Abdelaal, State University of New York, Polytechnic Institute

Evaluating the Impact of 8 AM Class Schedules on Student and Faculty Performance and Perspectives in Engineering Technology Department

Dr. Khalid Zouhri, University of Dayton

James A Obermeyer, University of Dayton

Dr. Philip Appiah-Kubi, University of Dayton

Corinne Mowrey, University of Dayton

Teaching Time Standards in a Practical Way: How ET Students Were Taught the Importance of Time Standards in the Real World

Mr. Rajesh Balasubramanian, The University of Memphis

Using EvaluateUR-CURE and Evaluate-Compete to Provide Student Feedback While Documenting Student Learning Gains Defined by ABET EAC and ETAC Performance Indicators

Dr. Ilya Y. Grinberg, SUNY Buffalo State University

Dr. Jill Singer

Dr. Jikai Du, SUNY Buffalo State University

A Novel "Positive" Approach/Analysis for Enhanced Understanding of the "Negative" Statement of the Second Law of Thermodynamics

Dr. Sunil Mehendale, Michigan Technological University

T424 - Building a Community-Based Definition of an Entrepreneurial Mindset Framework

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Speakers: Dr. Prateek Shekhar, New Jersey Institute of Technology; Dr. Adam R. Carberry, The Ohio State University; Dr. Cheryl A. Bodnar, Rowan University; Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus; Ms. Alexandra Mary Jackson

Participants will actively engage with one another to

collaboratively explore and define facets of entrepreneurial mindset using scholarly data uncovered through a scoping literature review.

T425 - Environmental Engineering Division (ENVIRON) Technical Session 2 - Engineering for One Planet (EOP)

1:30 P.M. - 3:00 P.M., C125, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Alexa Rihana Abdallah, University of Detroit Mercy; Fethiye Ozis, Carnegie Mellon University; Andrew Pfluger, United States Military Academy

Session focuses on papers integrating the Engineering for One Planet (EOP) Framework.

Infusing Sustainability into Diverse Courses and Programs Using Open Source Engineering for One Planet (EOP) Teaching Resources

Cynthia Anderson, Alula Consulting

Cindy Cooper, The Lemelson Foundation

Disrupting the Curriculum: Leveraging the Engineering for One Planet Framework to (re)Center Sustainability in Engineering Education

Cherish C. Vance, The Ohio State University

Dr. Patrick J. Sours, The Ohio State University

Empowering Change: The Role of Student Changemakers in Advancing Sustainability within Engineering Education

Victoria Matthew, Broadening Impacts

Dr. Andrew Schulz, Georgia Institute of Technology

Reese Emily Simancek

Emma Telepo, Michigan State University

Jo Machesky, Yale University

Hadley Willman, California Polytechnic State University, San Luis Obispo

Dr. Abdulmalik Bamidele Ismail, The University of Alabama

The Sustainability as Stewardship Framework: A Revision of the Engineering for One Planet Framework for an Existing Civil Engineering Program at a Christian Institution

Dr. David Brian Dittenber P.E., Cedarville University

Mackenzie Booth, Cedarville University

Cultivating a Sustainable Mindset in Undergraduate Engineering through the Engineering for One Planet Framework

Dr. Andrea T. Kwaczala, Western New England University

Devina Jaiswal, Western New England University

Dr. Lisa K. Murray, Western New England University

T426B - Joint Session: Experimentation and Laboratory-Oriented Studies Division and Civil Engineering Division

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsors: Experimentation and Laboratory-Oriented Studies Division (DELOS); Civil Engineering Division (CIVIL)

Moderators: Dominik May, University of Georgia; Scott Katalenich, United States Military Academy

This session will feature papers from both divisions covering research on laboratory-based instruction in civil engineering.

Integrating a Design Project to Bridge Experiment for Statics learning in General Engineering Education

Dr. Yingxiao Song, Muskingum University

Do Independent Studies Help Students Learn Better? A Case Study on Student Perception and Attitude

Dr. M. A. Karim, Kennesaw State University

Dr. Youngguk Seo, Kennesaw State University

Parth Bhavsar, Kennesaw State University

Impact of Learning Transfer-focused Lab Writing Modules to the Writing Instructional Materials by Engineering Lab Instructors

Dr. Dave Kim, Washington State University, Vancouver

Dr. Charles Riley P.E., Oregon Institute of Technology

Dr. John D. Lynch, Washington State University

Dr. Ken Lulay P.E., University of Portland

Dr. Sean St. Clair, Oregon Institute of Technology

The Implementation and Assessment of the Effectiveness of Peer-Teaching Instructional Technique in Lecture and Laboratory Courses

Dr. Simon Thomas Ghanat P.E., The Citadel

Dr. Ronald W. Welch P.E., The Citadel

Dr. William J. Davis P.E., The Citadel

T427 - First-Year Programs Division Technical Session 6: Equity, Inclusion, and Access

1:30 P.M. - 3:00 P.M., A106, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Andrew Gillen, Northeastern University; Adetoun Yeaman, Northeastern University

This is a full paper session on equity, inclusion, and access of all students to engineering programs.

Interdisciplinary Summer Math Bridge Program for At-Risk Transition Students

Dr. Stephanie Weeden-Wright

Dr. John M. Hutson, Lipscomb University

Amy Nelson, Lipscomb University

Dr. Max David Collao, Lipscomb University

Jordan Wilson P.E., Lipscomb University

Monica Sartain, Lipscomb University

Evaluation of Teaching Strategies and Campus Resources for the Students at the Regional Campuses

Dr. Qudsia Tahmina, The Ohio State University, Marion

Creation of a Workshop Series on Inclusive Teaching and Design Practices for Engineering Undergraduate Teaching Assistants

Dr. Ingrid Joylyn Paredes, New York University

Kaz Burns

Mei Schuerch

Prof. Rui Li, New York University

Mr. Peter Yuk Li, New York University

Sooah Kwak, New York University

Chris Woods, New York University

Dominic Roy Krusniak, New York University

Augmenting Introductory Engineering Courses to Include a Collaborative Learning by Design Project: Assessment of Outcomes

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, Texas A&M University, Kingsville

Equitable Access to Majors through Removal of Competitive Application Process (CAPS) within a First-Year Engineering Program

Dr. Lisa Lampe, University of Virginia

Dr. Lloyd R. Harriott, University of Virginia

Sarah Schultz Robinson, University of Virginia

Designing Good Practices for Recruitment, Admissions, and Program Structure of Engineering Outreach Programs to Increase Access for Marginalized and Non-Traditional Higher Education Students

Dr. Sonia Travaglini, Stanford University

Aya Mouallem, Stanford University

Dr. Sheri D. Sheppard, Stanford University

T427B - First-Year Programs Division GIFTS: Great Ideas For Teaching Students

1:30 P.M. - 3:00 P.M., E148, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Gregory Bucks, University of Cincinnati; Richard Whalen, Northeastern University

Great Ideas For Teaching 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: Improved Team Skill Development through a Semester-Long Teamwork Report

Dr. Melissa M. Simonik, State University of New York at Binghamton

Mr. Koenraad E. Gieskes, State University of New York at Binghamton

GIFTS: Passports to Engage Students in Engineering

Dr. Abigail Clark, Ohio Northern University

Dr. Stephany Coffman-Wolph, Ohio Northern University

Dr. Lauren H. Logan, Ohio Northern University

GIFTS: Project-Based Service-Learning for First-Year Engineering Students

Dr. Fayekah Assanah, University of Connecticut

Dr. Kristina Wagstrom, University of Connecticut

Dr. Daniel D. Burkey, University of Connecticut

Ms. Marina A. Creed APRN, FNP-BC, MSCN, University of Connecticut

GIFTS: Transforming First-Year Engineering Curriculum with Diversity, Equity, Inclusion, and Entrepreneurial-Minded Learning

Dr. Lisa K. Murray, Western New England University

GIFTS: Using Storybooks and Storytelling to Prompt Discussion and Reflection of Growth Mindset

Dr. Stephany Coffman-Wolph, Ohio Northern University

Dr. Kimberlyn Gray, West Virginia University Institute of Technology

Dr. Abigail Clark, Ohio Northern University

GIFTS: Incorporating Bio-Inspiration into First-Year Design

Dr. Danielle Grimes, Cornell College

Dr. Niloofar Kamran, Cornell College

GIFTS: Dangerous Toys Project

Prof. Daniel Paul Harbowy, Lane Community College

GIFTS: Assessing Teamwork and Design Habits in a First-Year Engineering Design Course

Catherine Marie Hamel, University of Maryland

Jackelyn Raquel Lopez Roshwalb, University of Maryland

Mr. Kevin Calabro, University of Maryland

GIFTS: Activities for Exploring Beauty and Elegance in Engineering in a First-Year Seminar

Dr. Lee Kemp Rynearson, Campbell University

GIFTS: Templating Circuit Sub-Systems to Improve Outcomes in a First-Year Circuit Design Project

Brian Scott Krongold, University of Melbourne

Prof. Gavin Buskes, University of Melbourne

GIFTS: Sharing Stories and Building Belonging in a First-Year Engineering Course

Dori Harcharik, Western Washington University

Prof. Jill Davishahl, Western Washington University

T428 - Graduate Studies Division (GSD) Technical Session 6: Programs in Graduate Education

1:30 P.M. - 3:00 P.M., E141, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Insights from a Five-Year National Science Foundation Research Traineeship at our University: Program Description, Evaluation, Outcomes, and Lessons Learned

Mirit Shamir, Kansas State University

Jonathan Aguilar, Kansas State University

Dr. Rebecca Cors, University of Wisconsin, Madison

Dr. Ryan Robert Hansen, Kansas State University

Nathan P. Hendricks, Kansas State University

Gaea A. Hock

Dr. Stacy L. Hutchinson, Kansas State University

Prathap Parameswaran, Kansas State University

Prof. Matthew R. Sanderson

Dr. Melanie Derby, Kansas State University

A New Personalized Learning Approach Towards Graduate STEM Education: A Pilot in Chemical Engineering

Dr. April A. Dukes, University of Pittsburgh

Ms. Valerie E. Kerr, University of Pittsburgh

Susan K. Fullerton Shirey, University of Pittsburgh

Dr. Götz Veser, University of Pittsburgh

Dr. Mary E. Besterfield-Sacre, University of Pittsburgh

ConGrad: A Graduate Education Framework for Convergence Research and Experiential Learning

Ms. Tess Bisbee Meier, Worcester Polytechnic Institute

Dr. Ceren Yilmaz Akkaya, Worcester Polytechnic Institute

Yunus Doğan Telliel, Worcester Polytechnic Institute

Increasing Teaching Efficacy in Engineering Graduate Students through the Development and Facilitation of Summer Middle and High School STEM Experience

Dr. Jamie R. Gurganus, University of Maryland, Baltimore County

Michael M. Malschützky, Hochschule Bonn-Rhein-Sieg, Germany

Dr. Neha B. Raikar, University of Maryland, Baltimore County

Mrs. Yarazeth Medina, University of Maryland, Baltimore County

Applied Capstone Project for Working Professionals: A Decade of Experiences in Design, Execution, and Creating Value for Employers

Dr. Bharani Nagarathnam, Texas A&M University

Dr. Bimal P. Nepal, Texas A&M University

Dr. Malini Natarajarathinam, Texas A&M University

Ms. Kourtney Rogers Gruner, Texas A&M University

T430 - Computing and Information Technology Division Business Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 8, HYATT

REGENCY PORTLAND (HQ HOTEL)

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Mudasser Wyne, National University; Afsaneh Minaie, Utah Valley University

Business meeting

T432 - International Division (INTL) Technical Session: Assessment and Accreditation, Globalization without Travel

1:30 P.M. - 3:00 P.M., D137, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Yanjun Yan, Western Carolina University

This session will provide best practices in measuring and assessing international engineering outcomes and impact in addition to advancing global engineering competencies without travel

Assessing ABET Student Outcomes Through International Virtual Exchange

Bradley J. Putman, Bucknell University

Khaled A. Al-Sahili, An-Najah National University

Dr. Abdelhaleem Khader, An-Najah National University

Alia Gilbrecht, An-Najah National University

Digital Innovation to Remotely Guide the Development of Global Competencies Abroad

Dr. Patrick Joseph Tunno, Penn State University

Lori Miraldi, Pennsylvania State University

Dr. Stephanie Cutler, Pennsylvania State University

Focus Group Analysis of Engineering Collaborative Online International Learning (COIL+) Compared to Short-term Study Abroad Programs

Joshua E. Katz, University of Illinois at Urbana - Champaign

Hannah Dougherty, University of Illinois at Urbana - Champaign

Dr. Molly H. Goldstein, University of Illinois at Urbana - Champaign

Dr. Ernest-John Ignacio, University of Illinois at Urbana - Champaign

Dr. Brian Woodard, University of Illinois at Urbana - Champaign

Text Mining Analysis for Assessing Washington Accord Graduate Attribute Profiles through Techno-Socio Project-Based Learning Program

Mr. Hiroyuki Ishizaki, Shibaura Institute of Technology

Dr. Maria Anityasari, Sepuluh Nopember Institute of Technology - ITS

Prof. Masaomi Kimura, Shibaura Institute of Technology

Prof. Hitoshi Nakamura, Shibaura Institute of Technology

Prof. Tomoko Iwata, Shibaura Institute of Technology

Dr. Mohammad Iqbal, Sepuluh Nopember Institute of Technology - ITS

Dr. Imam Mukhlash, Sepuluh Nopember Institute of Technology - ITS

Faiqoh Agustin, University of Maryland, College Park

Training Program in Teaching for Engineering for the Americas (EftA)

Dr. Jose Texier, LACCEI

Dr. Maria M. Larrondo-Petrie, Florida Atlantic University

Jusmeidy Zambrano

Laura Eugenia Eugenia Romero Robles, Tecnologico de Monterrey

T433 - Principal Skinner's Secrets: Cultivating STEM in Remote Locations, Steamed Hams!

1:30 P.M. - 3:00 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Rebekah Hammack, Purdue University at West Lafayette (PPI)

Taking engineering education opportunities to rural communities

Remote Learning: A Means to Advance Educational Equity in Isolated or Rural Regions

Mr. Marcelo Caplan, Columbia College

Professional Development for STEM Teachers in Rural Counties to Broaden Participation in Engineering

Dr. Taryn Melkus Bayles, University of Pittsburgh

Ms. Claudia J. Morrell, STEM Equity Initiative, LLC

Dr. Sandra Staklis, RTI International

Kevin A. Jordan, RTI International

Dual-Credit Engineering Program in Native American Serving School District: Best Practices and Findings

Dr. Monsuru O. Ramoni, Navajo Technical University

Impact of Professional Development in Culturally Relevant

Engineering Design for Elementary and Middle School Teachers (RTP, Diversity)

Frank Bowman, University of North Dakota

Dr. Bethany Jean Klemetsrud P.E., University of North Dakota

Dr. Emine Ozturk, North Carolina State University

Dr. Julie Robinson, University of North Dakota

Erin Lacina

T433B - Flanders' Fellowship: Building STEM Community Impact, Hi-Diddly-Ho!

1:30 P.M. - 3:00 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Benjamin Goldschneider, University of Virginia

Community engagement connects to engineering applications for pre-college learners.

Evaluating Fourth-Grader's Perception of Engineering Through a Community-Engaged Project (Evaluation)

Olivia Ryan, Virginia Polytechnic Institute and State University

Dr. Maija A. Benitz, Roger Williams University

Fundamental Research: A Framework for Socially Transformative Engineering through Conscientious Design (Other)

Dr. Senay Purzer, Purdue University

Tabe Ako Abane, Purdue University

Exploring How Contextual Factors Influence the Implementation of Middle School Engineering Curricula (Fundamental)

Dr. Jessica D. Gale, Georgia Institute of Technology

Dyanne Baptiste Porter, Georgia Institute of Technology

Dr. Meltem Alemdar, Georgia Institute of Technology

Jasmine Choi, Georgia Institute of Technology

Dr. Sunni Haag Newton, Georgia Institute of Technology

Dr. Abeera P. Rehmat, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Empowering the Future: Integrating Invention and Intellectual Property Education in P-12 Engineering to Foster Innovation

Ms. Marie Anne Aloia, Bayonne High School

Kathryn Hoppe

T434 - Teaching Sociotechnical Case Studies: Exhibition and Discussion

1:30 P.M. - 3:00 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

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

Moderators: Stephanie Hladik, University of Manitoba; Kari Zacharias, University of Manitoba

Speakers: Dr. Stephanie Claussen, San Francisco State University; Dr. Kathryn Johnson, Colorado School of Mines; Dr. Janet Y. Tsai, University of Colorado Boulder; Dr. Jeff R. Brown, Embry-Riddle Aeronautical University - Daytona Beach; Chad Rohrbacher, Embry-Riddle Aeronautical University - Daytona Beach; Taylor Joy Mitchell, Embry-Riddle Aeronautical University - Daytona Beach; Dr. Aditya Johri, George Mason University; Kelsey McLendon, University of Michigan; Prof. Jenna Tonn, Boston College

Engineering educators often use case studies to highlight important ethical aspects of engineering work. These cases frequently involve a mixture of materials to introduce students to the historical situation, the various stakeholders and considerations, decisions made, and implications for engineering practice. While students may learn a lot from the traditional case studies in engineering ethics, e.g., the Challenger disaster or the Tacoma Narrows bridge collapse, many of these studies present engineering ethical decision-making in terms of engineers' legal obligations, highlighting the importance of, for example, verifying calculations or acting as a whistleblower. This special session celebrates case studies that embrace the complex sociocultural and ethical challenges arising from the creation of new technologies, or the ever-present impacts of colonialism and capitalism. Some examples include racism perpetuated by algorithms (Benjamin, 2019; Noble, 2018), working in partnership with Indigenous communities (Eikenaar et al., 2022; Seniuk Cicek et al., 2021), and questions of data privacy and security in menstruation-tracking apps (Torchinsky, 2022).

This session showcases sociotechnical case study activities that have been developed for the postsecondary engineering education context, reaching across a variety of disciplines and topics. Examples presented include understanding different types of expertise for problem definition through interviews, a critique of the One Laptop Per Child project, stakeholder analysis for a large-scale mechanical composter, the story of Fritz Haber, analysis of an unprofessional email exchange, and the analysis of a memo related to the Three Mile Island disaster. Collectively, these case studies address

sociotechnical issues including expertise and design, critical understandings of engineering history and technological development, and professional and ethical communication.

This sociotechnical case study exhibition will include active participation from presenters and audience members. Presenters will discuss not only the content of their case but the pedagogical decisions behind its design and implementation. Audience members will have the opportunity to engage in discussions with presenters around content, logistical considerations, assessment, and future work. At the end of the session, we will collaboratively brainstorm high-level considerations for the design and implementation of sociotechnical case studies for use in postsecondary engineering education. This session will be of interest to engineering educators who teach sociotechnical courses (e.g., courses focused on engineering professionalism, technology, and society, etc.) as well as instructors who are looking for ways to integrate sociotechnical topics into their technical and design courses.

T435 - Technology Integration in Manufacturing Curriculum

1:30 P.M. - 3:00 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Faisal Aqlan, University of Louisville; Julia Morse, Kansas State University - Polytechnic Campus

Adapting CAD/CAM and CNC Curriculum to Advances in Technology

Dr. Derek M. Yip-Hoi, Western Washington University

Dr. David Gill P.E., Western Washington University

Exploring Career Growth for Deaf and Hard-of-Hearing Individuals via Machining Training: A Comparative Behavioral Analysis

Krzysztof Kamil Jarosz, Rochester Institute of Technology

Yan-Ting Chen, Rochester Institute of Technology

Trisha Gard-Thompson, Rochester Institute of Technology

Mark Davis, Rochester Institute of Technology

Dr. Yunbo Zhang, Rochester Institute of Technology

Dr. Rui Liu, Rochester Institute of Technology

Exploring the Relationship Between Infill Ratio, Infill Pattern, and Material in 3D-Printed Part Performance

Ms. Ayla Acuña, California State Polytechnic University, Pomona

Dr. Moe Rabea, California State Polytechnic University, Pomona

Unique Instructional Delivery of Additive Manufacturing: A Holistic Review

Dr. Ismail Fidan, Tennessee Technological University

Dr. Perihan Fidan, Tennessee Technological University

Dr. Suhas S. Alkunte, Old Dominion University

Dr. Orkhan Huseynov, The University of Alabama in Huntsville

Mr. Mohammad Alshaikh Ali, Tennessee Technological University

Vivekanand A. Naikwadi, Tennessee Technological University

T437 - Mathematics Division (MATH) Technical Session 3

1:30 P.M. - 3:00 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Moderator: Meiqin Li, University of Virginia

Design and Implementation of a Badge Architecture to Motivate Students' Excellence in an Engineering Calculus Course

Dr. Alberth Alvarado, Universidad Galileo

Sr. Jose Roberto Portillo, Universidad Galileo

Byron Haroldo Linares Roman

Integrating Precalculus into Calculus II and Its Outcomes

Dr. Meiqin Li, University of Virginia

Stacie Pisano, University of Virginia

Jennifer Felder Marley, University of Virginia

Anne M. Fernando, University of Virginia

Prof. Lindsay Wheeler, University of Virginia

Rethinking Precalculus: A Thematic Approach

Mr. Carl Boyet, Louisiana Tech University

Dr. Jonathan Walters, Louisiana Tech University

Christian Smith, Louisiana Tech University

The Impact of Inquiry-Oriented, Differential-Equations Instruction on Students' Performance and Beliefs about Mathematics

Dr. Julia Spencer, University of Virginia

Prof. Megan Ryals, University of Virginia

Dr. Gianluca Guadagni, University of Virginia

Unlocking Success in Calculus for Engineering Majors: Impact of Engagement Tactics for Underrepresented Undergraduate Engineering Students

Zenaida Aguirre Munoz Ph.D., University of California, Merced

Melissa Almeida, University of California, Merced

Comlan de Souza, California State University, Fresno

Keith Collins Thompson, University of California Merced

Khang Tran, California State University, Fresno

Yue Lei, University of California, Merced

Erica M. Rutter, University of California, Merced

Dr. Lalita G. Oka, California State University, Fresno

Maribel Viveros, University of California Merced

Bianca Estella Salazar, University of California, Merced

Changho Kim, University of California, Merced

T438A - Shaping Tomorrow's Minds: Updating/Redesigning the Mechanical Engineering Curriculum for Students in the 2020s and Beyond

1:30 P.M. - 3:00 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Siamak Farhad, The University of Akron; Maryam Younessi Sinaki, Cleveland State University

Speakers: Ms. Annie Abell, The Ohio State University; Dr. Mark A. Pagano, University of Washington; Dr. Rungun Nathan, Pennsylvania State University, Berks Campus; Dr. Jennifer Melanie Bastiaan, Kettering University; Dr. Najmus Saqib, Marian University

Join us for an insightful panel discussion that delves into the transformation of mechanical engineering education to meet the demands of the 2020s and beyond. Our panel of esteemed experts, including educators and thought leaders, will share perspectives on updating and redesigning the mechanical-engineering curriculum.

As we navigate a future marked by technological innovation and evolving industry landscapes, this session will explore strategies for curriculum development that incorporates emerging technologies, promotes adaptability, addresses sustainability challenges, and embraces diverse perspectives. Attendees can expect engaging discussions and real-world examples, offering valuable insights into preparing the next generation of mechanical engineers for success in an ever-changing world.

While organized by the Mechanical Engineering Division, this panel is inclusive and welcomes participants from all divisions. Whether you are an educator, researcher, or industry professional, we invite you to join us in shaping the future of engineering education and exploring the next generation of curricula that will empower engineers to thrive in the years ahead.

Free ticketed event

T438B - MECH - Technical Session 7: Assessment and Evaluation in Engineering Education

1:30 P.M. - 3:00 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Sudeshna Pal, University of Central Florida

This session discusses innovative approaches to assessment and evaluation in engineering education. Topics include the impact of digital twins on learning, using homework problems to analyze problem-solving approaches, the development of a diagnostic test module, alternative grading methods, and designing a new hardware-based dynamic systems course.

Impact of Digital Twins in Engineering Education: Enhancing Learning Motivation and Accessibility - A Review Study with a Proposed New Solution

Kalon Ma Bienz, California Polytechnic State University, San Luis Obispo

Devon Bountry, California Polytechnic State University, San Luis Obispo

Chang Rui Liu, California Polytechnic State University, San Luis Obispo

Behnam Ghalamchi

Homework Problems as Epistemic Agents: Unpacking Students' Problem-Solving Approaches in a Technical Engineering Class

Sandra Walter Huffman, Massachusetts Institute of Technology

Work-in-Progress Paper: Fundamentals of Engineering Diagnostic Test (FEDT) Learning Management System (LMS) Module

Dr. Nazli Aslican Yilmaz Wodzinski P.E., Minnesota State University, Mankato

Classification of Alternative Grading Approaches: Review and Reflections from Practice

Dr. Simon Li, University of Calgary

Yves Pauchard, University of Calgary

Dr. Ahmad Ghasemloonia, University of Calgary

Design and Assessment of a New Hardware-Based Dynamic

Systems Course for a Mechanical Engineering Undergraduate Program

Dr. Jennifer Melanie Bastiaan, Kettering University

Prof. Kristy Brinker Brouwer, Kettering University

T438C - MECH - Technical Session 8: Sustainability and Interdisciplinary Learning

1:30 P.M. - 3:00 P.M., G129, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Fiona Levey, Worcester Polytechnic Institute; Diane Peters, Kettering University

This session explores the integration of sustainability and interdisciplinary approaches in engineering education. Topics include digital case studies on sustainability, interdisciplinary learning benefits, cross-disciplinary robotics projects, promoting environmental behavior, and the roles of design and fabrication in advanced mechanical design courses.

Sustainability-focused Digital Case Studies: Enhancing Engineering Education

Deepika Ganesh, University of Michigan

Carissa Yim, University of Michigan

The Benefits of Interdisciplinary Learning Opportunities for Undergraduate Mechanical Engineering Students

Isaac Koduah Kumi, Old Dominion University

Dr. Stacie I Ringleb, Old Dominion University

Mr. Francisco Cima

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

Dr. Pilar Pazos, Old Dominion University

Danielle Marie Rhemer, Old Dominion University

Reflections of Undergraduate Engineering Students Completing a Cross-Disciplinary Robotics Project with Preservice Teachers and Fifth Graders in an Electromechanical Systems Course

Dr. Krishnanand Kaipa, Old Dominion University

Dr. Jennifer Jill Kidd, Old Dominion University

Isaac Koduah Kumi, Old Dominion University

Dr. Stacie I Ringleb, Old Dominion University

Dr. Orlando M Ayala, Old Dominion University

Dr. Kristie Gutierrez, Old Dominion University

Dr. Pilar Pazos, Old Dominion University

Mr. Francisco Cima

Danielle Marie Rhemer, Old Dominion University

Imparting High-Level Environmental Behavior Through Tailored Interventions

Dr. John T. Solomon, Tuskegee University

Mr. Hang Song, Auburn University

Dr. Lauren E. Beckingham, Auburn University

Karen McNeal, Auburn University

Dr. Kelly Lazar, Clemson University

Work in Progress: The Roles of Design and Fabrication in Upper-Division Mechanical Design Courses

Leah Mendelson, Harvey Mudd College

Drew Price, Harvey Mudd College

T439 - Unique Pedagogies for Mechanics Education

1:30 P.M. - 3:00 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Amir Danesh-Yazdi, Rose-Hulman Institute of Technology; Andrew Sloboda, Bucknell 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

Different Teaching Styles and the Impacts on Test Design for Dynamics

Dr. Amie Baisley, University of Florida

Dr. Julian Ly Davis, University of Southern Indiana

Dr. Geoffrey Recktenwald, Michigan State University

Effectiveness of Just-In-Time Teaching on Helping Students Achieve Lower Order Learning Goals in a Mechanics of Materials Class

Dr. Marguerite Matherne, Northeastern University

Failing Forward: A Mastery-based Learning Approach in a Theory of Machine Kinematics and Dynamics Course

Dr. Joshua Gargac, Ohio Northern University

Paper or Silicon: Assessing Student Understanding in a Computer-based Testing Environment Using PrairieLearn

Mr. Jamal Ardister, Michigan State University

Dr. Geoffrey Recktenwald, Michigan State University

Sara Roccabianca, Michigan State University

T440 - Advancing Equity in STEM Academia: Insights and Strategies

1:30 P.M. - 3:00 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Joseph Henry, University of California, Irvine; Sylvia Mendez, University of Colorado at Colorado Springs

This session sheds light on the pathways and experiences of underrepresented groups, particularly Latine, Hispanic, and minority individuals, in engineering academia. Presentations will delve into the journey of Latine and Hispanic PhDs into teaching-focused faculty positions, the impact of summer camps on minority high school students' perceptions of STEM careers, and the perspectives of engineering postdoctoral scholars of color on improving university postdoctoral-affairs offices. Additionally, ongoing efforts to assess equity in recruitment, retention, and promotion between STEM and non-STEM faculty at a large R1 institution will be discussed. Join us for an insightful exploration of strategies to advance equity and diversity in STEM academia.

Illuminating the Pathways of Latine and Hispanic PhDs into Engineering Teaching-Focused Faculty Positions

Mr. Joseph Leon Henry, University of California, Irvine

Prof. Natascha Trellinger Buswell, University of California, Irvine

Eva Fuentes-Lopez, University of California, San Diego

Impact of Summer Camp on Minority High School Students on STEM Career Perceptions

Amani Qasrawi, The University of Texas at San Antonio

Dr. Tulio Sulbaran, The University of Texas at San Antonio

Dr. Sandeep Langar, The University of Texas at San Antonio

Improving University Postdoctoral Affairs Offices: Viewpoints from Engineering Postdoctoral Scholars of Color

Dr. Sylvia L. Mendez, University of Colorado, Colorado Springs

Molly Stuhlsatz

Jennifer Tygret

A Data-gathering Effort on STEM v. Non-STEM Faculty for Assessing Equity in Recruitment, Retention, and Promotion at a Large R1 Institution

Milagros Rivera, George Mason University

Supriya Baily, George Mason University

Patrick Willette Healey, George Mason University

Dr. Trish Wonch Hill, University of Nebraska, Lincoln

Tehama Lopez Bunyasi, George Mason University

Dr. Leigh S. McCue, George Mason University

Dr. Girum Urgessa, George Mason University

T441 - Best of Multidisciplinary Engineering Division (MULTI)

1:30 P.M. - 3:00 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Cynthia Barnicki, Milwaukee School of Engineering; Mary Realff

The session will highlight papers that were ranked highest by our reviewers, including the Best Paper winner in MULTI.

Impact of Satellite Campuses on Undergraduate Student Experience in Comparison to Big University Campuses

Dr. Surupa Shaw, Texas A&M University

Dr. Kristi J. Shryock, Texas A&M University

The Value of Participating in the Grand Challenges Scholars Program: Students' Perceptions Across Three Years

Amy Trowbridge, Arizona State University

Dr. Haolin Zhu, Arizona State University

Understanding the Nature and Evolution of Sustainability Mindset in First-Year Engineering Students

Krystal Colon, University of Puerto Rico

Andrea Karola Rivera Castro, University of Puerto Rico

Dr. Aidsa I. Santiago-Román, University of Puerto Rico

Dr. Christopher Papadopoulos, University of Puerto Rico

Dr. Sandra Loree Dika, University of North Carolina at Charlotte

Dr. Nayda G. Santiago P.E., University of Puerto Rico

Kaishmarie Alicea Romero, University of Puerto Rico

Work-In-Progress: Holistic, Multi-disciplinary Systems Approach to Teaching Sustainable and Contextual Engineering Concepts for Undergraduate Students

Dr. Courtney Pfluger, Northeastern University

Dr. Susan M. Lord, University of San Diego

T442 - NEE Technical Session 2 - Educator's Experience and Perspective

1:30 P.M. - 3:00 P.M., E144, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Vimal Viswanathan, San Jose State University

Effective Strategies for New Faculty from the Perspective of an Assistant Professor in the Early-Career Stage

Dr. Yuzhang Zang, Western Washington University

Engineering Educator Identity Development in a Socially and Culturally Embedded Discipline Specific Graduate Teaching Assistant Professional Development Program

Dr. Gokce Akcayir, University of Alberta

Dr. Marnie V. Jamieson, University of Alberta

Kristian Basaraba, University of Alberta

Duncan Buchanan, University of Alberta

Qingna Jin

Mijung Kim, University of Alberta

Dr. Janelle McFeetors, University of Alberta

Kerry Rose, University of Alberta

Exploring the Connection Between Positioning Theory and Educator Experiences

Yuliana Flores, University of Washington

Dr. Cynthia J. Atman, University of Washington

Soraya Grace Barar

Dr. Jennifer A. Turns, University of Washington

Getting Started Teaching an Undergraduate Engineering Laboratory

Dr. Rebecca Marie Reck, University of Illinois Urbana-Champaign

Dr. Jessica R TerBush, University of Illinois Urbana-Champaign

Prof. Caroline Cvetkovic, University of Illinois Urbana-Champaign

Prof. Holly M. Golecki, University of Illinois Urbana-Champaign

Dr. Christopher D. Schmitz, University of Illinois Urbana-Champaign

Katie Ansell, University of Illinois Urbana-Champaign

David Mussulman, University of Illinois Urbana-Champaign

Chandrasekhar Radhakrishnan

Ilalee Harrison James, University of Illinois Urbana-Champaign

T443 - ASEE New Board Orientation

1:30 P.M. - 3:00 P.M., REGENCY BALLROOM A , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Board of Directors

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

T445 - Engineering Physics and Physics Division (EP2D) Technical Session 2

1:30 P.M. - 3:00 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Carl Frederickson, The University of Central Arkansas

Exploring Swarm Behavior: An Undergraduate Project in Physics and Computer Programming

Dr. Guenter Bischof, Joanneum University of Applied Sciences

Mr. Konrad Dobetsberger, Joanneum University of Applied Sciences

Mr. Markus Ensbacher, Joanneum University of Applied Sciences

Mr. Christian J. Steinmann

Mr. Alexander Strutzenberger, Joanneum University of Applied Sciences

Smart Spirometer: A Project-Based Learning Experience

Prof. Bala Maheswaran, Northeastern University

Lindsey Evelyn Adamchik, Northeastern University

Kyle Murrah, Northeastern University

Sabina Perry, Northeastern University

Miss Kiersten Alexandra Tomas, Northeastern University

Dr. Haridas Kumarakuru, Northeastern University

Development of Modeling and Communication Skills through a Project-Based Learning Approach in the Physics Laboratory

Prof. Rodrigo Cutri, Maua Institute of Techonology

Airton Eiras

Dr. Octavio Mattasoglio Neto

Project-Based Learning on Diverse Concepts in a Power Electronic Laboratory

Prof. Tooran Emami Ph.D., United States Coast Guard Academy

Embodied Learning with Gesture Representation in an Immersive Technology Environment in STEM Education

Mr. Junior Anthony Bennett, Purdue University

Dr. Jason Morphew, Purdue University

Michele W. McColgan, Siena College

The Physics of Gym Elastic: Elastic Force and Energy of a Non-Linear Material

Prof. Rodrigo Cutri, Maua Institute of Techonology

Dr. Nair Stem, Instituto Mauá de Tecnologia

Dr. Octavio Mattasoglio Neto, Instituto Mauá de Tecnologia

T448B - Systems Engineering Business Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Systems Engineering Division (SYS)

Moderator: Radu Babiceanu, Embry-Riddle Aeronautical University - Daytona Beach

All division members are invited to attend. This is the annual business meeting of the Systems Engineering Division. Election of new officers.

T450 - Transfer Issues between 2-Year Colleges and 4-Year Engineering and Engineering Technology programs 3

1:30 P.M. - 3:00 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Carl Whitesel, South Mountain Community College

Transfer issues between two-year colleges and four-year engineering and engineering-technology programs

A Model for Course-Based Undergraduate Research in First-Year Engineering

Prof. Eric Davishahl, Whatcom Community College

Examining the Motivations and Experiences of Transfer Students Participating in an Undergraduate Research Course

Shannon Conner, Clemson University

Dr. Lisa Benson, Clemson University

Dr. D. Matthew Boyer, Clemson University

Work in Progress: Transformation Course-Based Undergraduate Research Experience (T-CURE)

Dr. Heather Dillon, University of Washington

EC Cline, University of Washington Tacoma

Dr. Emese Hadnagy, University of Washington Tacoma

Dr. Sarah L. Rodriguez, Virginia Polytechnic Institute and State University

Amanda K. Sesko, University of Washington Tacoma

Dr. Rebecca N. Sliger, Tacoma Community College

Noelle Wilson

Tracing Black Transfer Students' Success in Engineering: A Comparative Insight into Transfer-Student Trends at Two State Minority-Serving Institutions

Mr. Daniel Ifeoluwa Adeniranye, Florida International University

Dr. Bruk T. Berhane, Florida International University

Mr. Joseph Ronald Sturgess, Florida International University

Jingjing Liu, Florida International University

Community College Undergraduate Research using a Student-Driven and Student-Centered Approach

Dr. Elizabeth A. Adams P.E., California Polytechnic State University, San Luis Obispo

Prof. Gabriel Cuarenta-Gallegos, Cuesta College

T451 - Women in Engineering Division (WIED) Technical Session 3 - Belongingness and Community

1:30 P.M. - 3:00 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Melodie Williams, Walla Walla University

The papers in this session address belongingness and community

Building Community and Increasing Confidence Among First-Year Female Engineering Students through an Engaging Co-Curricular Workshop

Dr. Krystal Corbett Cruse, Louisiana Tech University

Kacie Mennie, Louisiana Tech University

Mrs. Ashton Garner Ward, Louisiana Tech University

Dr. Mary E. Caldorera-Moore, Louisiana Tech University

Fostering a Sense of Belonging for Women in Computing

through Community Service

Dr. Ruby ElKharboutly, Quinnipiac University

Investigating the Participation and Belongingness of Women in Engineering through Cultural Comparisons

Katlin Hart Rowley, California State University, Fresno

Dr. Kimberly Stillmaker PE, California State University, Fresno

Dr. Aaron Stillmaker, California State University, Fresno

Hayley Garza

Edgar Zuniga

Dr. Lalita G. Oka, California State University, Fresno

T455 - Engineering Leadership Development Division (LEAD) Technical Session: Engineering Leadership in Industry

1:30 P.M. - 3:00 P.M., F149, OREGON CONVENTION CENTER

Sponsor: Engineering Leadership Development Division (LEAD)

Whistle While You Work: Drivers and Impacts of Happiness at Work for Engineers

Mr. Seth Claberon Sullivan, Texas A&M University

Reducing Student Aversion to Strategic Networking

Dr. B. Michael Aucoin, Texas A&M University

Work-In-Progress: Understanding "Engineering Leadership" within Engineering Consulting Firms

Jessica J. Li, University of Toronto

Dr. Andrea Chan, University of Toronto

Elham Marzi, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

AI's Visual Representation Gap: Redefining Civil Engineering Workspaces for Early-Career Women

Miss Elizabeth Volpe, University of Florida

Dr. Denise Rutledge Simmons P.E., University of Florida

T457 - Faculty Development Division (FDD) Technical Session 7

1:30 P.M. - 3:00 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: John Morelock, University of Georgia; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 7

Bridging the Gap: Exploring Real-Life Experiences of Engineering Faculty in Implementing EBIPs

Stephanie Adams, Oregon State University

Dr. Shane A. Brown P.E., Oregon State University

Aturika Bhatnagar, New Jersey Institute of Technology

Dr. Prateek Shekhar, New Jersey Institute of Technology

Jeff Knowles, Oregon State University

Learning from Experience: A Faculty-Led Collaborative Inquiry Exploring Evidence-Based Strategies for Embedding Communication Skills Across Engineering Curricula

Dr. Ashley R. Taylor, Virginia Polytechnic Institute and State University

Dr. Josh Iorio

Kelly Scarff, Virginia Polytechnic Institute and State University

Angelo Biviano, Virginia Polytechnic Institute and State University

Ms. Christine Burgoyne, Virginia Polytechnic Institute and State University

Caroline Finlay Branscome, Virginia Polytechnic Institute and State University

Kathleen Carper, Virginia Polytechnic Institute and State University

Dr. Sara L. Arena, Virginia Polytechnic Institute and State University

Lessons Learned: Mental Health Initiatives for Engineering Faculty Impacts on Faculty Well-being

Ms. Shawna Dory, Penn State University

Dr. Sarah E. Zappe, Penn State University

Dr. Stephanie Cutler, Penn State University

Lessons Learned: Summer Book Club to Promote Reflection among Engineering Faculty on Mental Health of Students

Luis Delgado Jr., Penn State University

Dr. Stephanie Cutler, Penn State University

Dr. Sarah E. Zappe, Penn State University

Dr. Ibukun Samuel Osunbunmi, Penn State University

WIP: Teaching Evaluations for Teaching Improvements

Dr. Sarah Lynn Orton P.E., University of Missouri, Columbia

T459 - Equity, Culture & Social Justice in Education Division

(EQUITY) Technical Session 10

1:30 P.M. - 3:00 P.M., B118, OREGON CONVENTION CENTER

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

Tactile Learning: Making a Computer Vision Course Accessible through Touched-Based Interfaces

Dr. Seth Polsley, University of Nebraska, Lincoln

Ms. Amanda Kate Lacy

Samantha Ray, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Teaching Social Justice in Infrastructure: A Community of Practice Framework for the use of Case Studies

Dr. Claudia Mara Dias Wilson, New Mexico Institute of Mining and Technology

Thais Alves, San Diego State University

Dr. Corrie Walton-Macaulay, Saint Martin's University

Xiaomei Wang, Brigham Young University

Dr. Scott R. Hamilton P.E., York College of Pennsylvania

Gloria Faraone

Dr. Nicholas Tymvios, Bucknell University

Dr. Moses Tefe, Norwich University

Teaching Strategies that Incorporate Social Impacts in Technical Courses and Ease Accreditation Metric Creation

Ms. Ingrid Scheel, Oregon State University

Dr. Rachael E. Cate, Oregon State University

Dr. Natasha Mallette, Oregon State University

Dr. Ean H. Ng, Oregon State University

Stella Collier, Oregon State University

The Paint Bucket Model of Dis/ability in STEM Higher Education: Axioms 1-3

Dr. D. C. Beardmore, University of Colorado Boulder

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Exploring the Landscape of Graduate Student Mental Health: Populations, Methods, and Terminologies-Who is Missing from the Conversation?

Miss Motahareh Darvishpour Ahandani, Arizona State University, Polytechnic Campus

Dr. Jennifer M. Bekki, Arizona State University

T459A - Equity, Culture & Social Justice in Education Division

(EQUITY) Technical Session 16

1:30 P.M. - 3:00 P.M., A108, OREGON CONVENTION CENTER

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

The Prestige Game: Making Visible the Mental Health Effects of Institutional Prestige Seeking on Underrepresented STEM Students

Dr. Katherine Robert, Colorado School of Mines

Dr. Jessica Deters, University of Nebraska - Lincoln

Dr. Jon A. Leydens, Colorado School of Mines

From Their Perspective : What Underrepresented Students in Engineering Say about the Effect of Assessment and Reporting Practices on Their Level of Confidence

Ms. Lindsay Harley, Dartmouth College

Dr. Vicki V. May P.E., Dartmouth College

Rebecca Holcombe

WIP: "This is What We Learned": Sharing the Stories of Experiences of Indigenous-Centered, Engineering & Community Practice Graduate Program at Cal Poly Humboldt

Dr. Qualla Jo Ketchum, Cal Poly Humboldt

Developing a Social Justice Biomedical Engineering Curriculum Unit

Mr. Samuel J. Bullard, University of Minnesota - Twin Cities

Keisha Varma, University of Minnesota - Twin Cities

Race, Justice and Engineering Design - a Pilot Freshman Engineering Course

Dr. Noelle K. Comolli, Villanova University

Dr. David Jamison, Villanova University

T472 - CMC Industry Day Panel Sessions: Aligning Industry, Educators and Policymakers to Develop the Skilled Technical Workforce for Industry 4.0

1:30 P.M. - 3:00 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Dan Sayre, New World Associates, LLC

Speaker: Janelle Simmonds

In April of 2022 the ASEE Corporate Member Council convened the Industry 4.0 Workforce Summit, which

brought together leaders in education, industry, and policymaking to develop an action plan to better meet our national need for an engineering and technical workforce prepared for Industry 4.0. This session will disseminate the key findings from the summit, outlining the action plan and actions taken to date. The session will spotlight policy recommendations as well as recommended actions that universities, community colleges, and major employers should take to drive better workforce development results. Panelists will represent major institutions that have been active in the Workforce Summit and will be moderated by Summit co-chair, Maine State Representative Dan Sayre.

T477 - ETC Executive Board Meeting

1:30 P.M. - 3:00 P.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: Engineering Technology Council (ETC); Engineering Technology Division (ETD)

T481 - Creating Spaces for and About Queer Engineers

1:30 P.M. - 3:00 P.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Patricia Clayton, Wake Forest University; Brandon Bakka, University of Texas at Austin

Panelists in this session will discuss specific initiatives they have implemented in their own institutions to create safe spaces for LGBTQIA+ engineering students. Example LGBTQIA+-centered initiatives include reading groups and courses focused on LGBTQIA+ experiences in engineering, as well as undergraduate research programs for or about LGBTQIA+ engineering students. Panelists will discuss successes and challenges faced. Panelists will represent a broad range of institutional contexts and positions within engineering programs, such that audience members will leave with ideas of how they might implement similar initiatives at their own institutions.

T481B - Part I: A Community Conversation on Racial Equity

1:30 P.M. - 3:00 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Stephen Secules, Florida International University; Alex Mejia; Whitney Gaskins, University of Cincinnati; Dr. Kristen Moore, University at Buffalo, The State University of New York; Dr. Atota Bedane Halkiyo, Arizona State University

Racial equity is a topic that many people care about, yet taking concerted and sustained action about it remains a challenge. We are calling together a cross-section of those who are working on and interested in the topic of racial equity to: 1) draw on the broader community's expertise and integrate it into our ongoing racial-equity research projects, 2) share the project-knowledge generation with the broader community, and 3) spur further concerted efforts in the area of racial equity. The proposed event will be led by PIs of NSF-funded projects focused on racial equity. We will invite a representative cross-section of stakeholders to participate, including scholars, advocates, and program administrators. We will host this interactive event with two main parts. First, we will have participants collectively expand the funded NSF projects' knowledge base on racial equity. Second, we will conduct a mixer focused on building capacity for further work on racial equity. The learning objectives for the session are:

- The participants will gain knowledge about ongoing efforts regarding racial equity in engineering education, including initial project insights and framings.

- The participants will provide crucial input into these ongoing project efforts.

- The participants will network with others engaging with, invested in, and/or focusing on racial equity in engineering education.

The learning outcomes for the workshop are:

Expanded capacity of the ASEE community to pursue and collaborate on racial-equity related efforts

Expanded understanding of issues related to racial equity in engineering education

Free ticketed event

T482 - Use of Generative AI to Improve Teaching and Learning

1:30 P.M. - 3:00 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Lynne Molter, Swarthmore College; Cynthia Paschal, Vanderbilt University; John-David Yoder, Ohio Northern University

Speaker: Dr. Lynne A Molter, Swarthmore College

Join an engaging conference session where educators and innovators converge to explore the transformative potential of Generative AI in engineering education. Through dynamic discussions and collaborative brainstorming, participants will share ideas for integrating AI tools to enhance teaching methodologies and learning outcomes in engineering courses. This interactive session will allow you to collaborate with peers, fostering a forward-thinking approach to curriculum development and pedagogical innovation.

T493 - ASEE Member Community Roundtables on Engineering from Pre-K to 12 (CP12)

1:30 P.M. - 3:00 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsors: ASEE Commission on P12 Engineering Education; New Engineering Educators Division (NEE); Pre-College Engineering Education Division (PCEE); Engineering and Public Policy Division (EPP)

Moderator: Katey Shirey, EduKatey

This inaugural multi-division roundtable session will provide an opportunity for ASEE members from any Division to share concerns, experiences, and ideas to advance engineering education in grades preK to 12.

Objectives

Participation: Encourage knowledge-sharing and peer exchange to capitalize on existing P12 engineering education expertise among ASEE members and widen the ASEE membership working towards ASEE's vision of lifelong excellence in engineering education for every person in the United States from early childhood to adulthood.

Consensus-Building: Growing toward a driven body of ASEE members cohered around important issues, ideas, and actions. "What do we mean by engineering in K-12 space?"

Goal-setting: Articulate and explore preK-12 engineering education issues that resonate with ASEE members in order to direct the work of CP12 in the 2024-2025 year.

T494A - SPONSOR TECH SESSION: Leading the Fields: Updates from the Texas A&M Space and the Texas A&M Semiconductor Institutes

1:30 P.M. - 3:00 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join us as we discuss how Texas A&M is leading the field of space exploration with the world's largest indoor moonscapes and Marscapes for testing, training, and workforce development. Additionally, we'll explore the partnership with the Texas A&M Semiconductor Institute and how it will be leveraged to address the state and national need for trained experts in the field of semiconductors and microelectronics.

Speakers: Dr. Nancy Currie-Gregg, director, Texas A&M Space Institute; Dr. David Staack, Associate Vice Chancellor for Research

T494B - SPONSOR TECH SESSION: The Instant Innovator: AI and EML for the Classroom - Presented by EngineeringUnleashed

1:30 P.M. - 3:00 P.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

This workshop explores artificial-intelligence (AI) classroom innovation methods. Explore our "poor man's" AI training prompts to generate deeply compelling questions for any discipline. Experiment with our entrepreneurially minded learning (EML) combinatory methods to create instant, novel teaching innovations that show students the opportunity, impact, and value for any topic. Discuss the critical role of

adaptability in higher education as new AI tools are released, such as Sora, which can generate high-quality video from a few lines of text. For this workshop, you'll need access to a current AI platform, such as ChatGPT 3.5/4.0, Copilot, or Gemini.

Workshop Facilitators:

- A.L. Ranen McLanahan (The Kern Family Foundation)
- Maria-Isabel Carnasciali (Merrimack College)

T494C - SPONSOR TECH SESSION: Using AI in STM32 Hands-on Laboratories: Supporting Students 24/7 with a Generative AI Assistant while Interacting with Real Remotely Accessible STM32 Microprocessors Available through LabsLand and DigiKey

1:30 P.M. - 3:00 P.M., B110 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

This presentation features a collaboration between LabsLand, Digi-Key, and STMicroelectronics. The session will highlight the new AI assistant relying on GPT4 used in combination with 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 show demonstrations and allow attendees to use the assistant; see the advantages of the tool and the different customizations that can be done; and also discuss the limits and the trends in this area. By integrating this in the remote laboratories, students can expand their laboratory experience by interacting with real equipment while having an AI assistant that can support through the process of building the application. This way, students not only have the hardware anywhere anytime, but also the high-level support of the tool, and instructors can control the answers and the communications between the system and the student. 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.

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.

T501 - Aerospace Division (AERO) Technical Session 4

3:15 P.M. - 4:45 P.M., G129, OREGON CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Waterloo Tsutsui, Purdue University at West Lafayette (COE)

Using a Systems Engineering-based Approach to Run a Large Project-based Program: Lessons Learned Over 12 Years of Education

Prof. Matthew Erik Nelson, Iowa State University of Science and Technology

Mrs. Christine Nicole Nelson

Mason Henry, Iowa State University of Science and Technology

Student Rocketry: Out-of-Class Learning Experiences from a Year-Long Capstone Project at University

Mr. Tim Drake, Saint Louis University

Dr. Srikanth Gururajan, Saint Louis University

Effect of Assessment Structure on Perceived Efficacy of a Rocketry Course

Scott Nguyen

Dr. Joshua Rovey, University of Illinois Urbana-Champaign

Heather Ruth Arnett, University of Illinois Urbana-Champaign

High-Temperature Materials Testing using a Hybrid Rocket Testbed

Dr. Dustin Scott Birch, Weber State University

Grounding Aeronautical Engineering Education in Engineering Thermodynamics

Prof. Terry Bristol, Institute for Science, Engineering and Public Policy, Portland State University

T502 - Architectural Engineering Division (ARCHE) Technical Session 2

3:15 P.M. - 4:45 P.M., A107, OREGON CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderators: Eugene Kwak, State University of New York, College of Technology at Farmingdale; Ryan Solnosky, Pennsylvania State University

Integrating BIM into Sustainable Design: Perception and Awareness of Architecture and Construction Management Students

Mr. Tran Duong Nguyen, Georgia Institute of Technology

Dr. Sanjeev Adhikari, Kennesaw State University

Spreadsheets Development and Use as a Tool or Obstacle Enhancing Competencies, in the Structural Engineering Learning

Prof. Luis Horacio Hernandez Carrasco, Tecnologico de Monterrey

Prof. Miguel X. Rodriguez-Paz, Tecnologico de Monterrey

Saul E. Crespo, Tecnologico de Monterrey

The Thurman Botanical Tapestry: Integrating Engineering Design, Botanical Aesthetics, Scientific Innovation, and Pedagogical Enrichment

Dr. Pavel Navitski, Oral Roberts University

Rachel L. Budavich, Oral Roberts University

Anna K. Kinnunen, Oral Roberts University

Nathaniel Youmans, Oral Roberts University

Tanner David Craig, Oral Roberts University

Hannah Marie Lucy, Oral Roberts University

Using AI Chatbots to Produce Engineering Spreadsheets in an Advanced Structural Steel Design Course

Alexander Campbell, Oklahoma State University

WIP: Utilizing Mind-Mapping to Connect the Skillsets of Architecture Students for Both Hands-On and Lecture-Oriented Teaching Approaches

Ignacio Guerra P., Universidad San Francisco de Quito

Green Roofs and their Carbon Footprint

Caitlyn Blaine Christian, EIT, Oklahoma State University

Prof. Christina McCoy, Oklahoma State University

Prof. Blake Mitchell, Oklahoma State University

T503 - Engineering Education Issues Relevant to Agricultural, Biological and Ecological Engineering-Part 2

3:15 P.M. - 4:45 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Moderator: Niroj Aryal

This session is designed to cover myriad topics, including instructional strategies that emphasize experiential learning and methods for how students transfer knowledge across contexts and classroom environments. Participants will discuss issues ranging from how colleagues establish education programs with the private sector to how to integrate technology to bridge language gaps across an increasingly diverse student body.

Biomanufacturing & Engineering for the Appalachian Highlands: Updates on the Development of a Scalable Bioengineering Program in Rural Settings

Prof. Richard Cody Prince, East Tennessee State University

Pamela Mims, East Tennessee State University

Aruna Kilaru, East Tennessee State University

Eric Jorgenson, East Tennessee State University

Impact of Experimental Centric Pedagogy on Learning Outcomes: A Comparative Trend Analysis in Industrial Engineering and Biology

Hannah Abedoh, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Blessing Isoyiza Adeika, Morgan State University

Dr. Adedayo Ariyibi, Morgan State University

Dr. Seong Lee, Morgan State University

Language Fusion in the Lab: Unveiling the Translanguaging Strategies of Spanish-Speaking Students in Biosystem Engineering Technology and Science

Hector Palala, University of Nebraska, Lincoln

Heydi Han, University of Nebraska, Lincoln

Juan Carlos Ramos Tanchez, Cornell University

Boanerges Elias Bamaca, University of Nebraska, Lincoln

Transfer of Learning from Mathematics, Science, and Physics Courses to Upper-Level Engineering Courses in Biological Systems Engineering

Dr. Logan Andrew Perry, University of Nebraska, Lincoln

T504 - Biomedical Engineering Division (BED) Technical Session 2

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Kathleen Bieryla, University of Portland; Julian Lippmann, University of Miami

Engineering Design Integrated Tissue Engineering Course Module: Scleraxis Tendon Bioreactor Project

Dr. Tugba Ozdemir, South Dakota School of Mines and Technology

Ms. Jillian Irene Linder, South Dakota School of Mines and Technology

Erdal Şenocak

An Iterative Design Approach in Biomedical Engineering Student Group Projects

Dr. William D. Moscoso-Barrera, University of Texas at Austin

Prof. Huiliang Wang, University of Texas at Austin

A Perspectives-Making Approach to Biomedical Engineering Design: Entrepreneurship, Bio-Inspired Design, and Arts

Dr. Adel Alhalawani, Rose-Hulman Institute of Technology

Sophia Koop

Dr. Thomas Omwando, Simpson University

Dr. Lisa Bosman, Purdue University

A Multi-Institutional Assessment of Entrepreneurial Mindset Perceptions of Students Participating in Entrepreneurial REU Programs Through Concept Maps

Ms. Alexandra Mary Jackson, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

Cassandra Sue Ellen Jamison, Rowan University

Dr. Kaitlin Mallouk, Rowan University

Dr. Mary Staehle, Rowan University

Bridging Extracurricular Skill Needs in Bioengineering Capstone Design with Just-in-Time Workshops

Eliot Bethke, University of Illinois at Urbana - Champaign

Dr. Ali Ansari, University of Illinois Urbana-Champaign

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Dr. Joe Bradley, University of Illinois Urbana-Champaign

Dr. Ruth Ochia P.E., Temple University

Dr. Holly M. Golecki, University of Illinois Urbana-Champaign

The Snail Progression of Ethical Instruction: Nurturing Ethical Mindsets Across the Biomedical Engineering Curriculum

Dr. Elizabeth Kathleen Bucholz, Duke University

Dr. Cameron Kim, Duke University

Joshua Robert Chan, Duke University

Christian Ferney, Duke University

T505 - Promoting Inclusivity and Broadening Participation

3:15 P.M. - 4:45 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Janie Brennan, Washington University in St. Louis; Matthew Cooper, North Carolina State University at Raleigh

To Record or Not to Record? Collaborating through Conflict

Emily Risë Crum, Columbia University

Kristin Leigh Bennett, University of Washington

Prof. Stuart Adler, University of Washington

Prof. David S. Bergsman, University of Washington

Nicole Minkoff, University of Washington

Dr. Alexis N. Prybutok, University of Washington

Fostering Diversity, Equity, and Inclusion in Engineering Education: A Case Study of UIC Chemical Engineering Department

Dr. Betul Bilgin, The University of Illinois at Chicago

Introducing Students To Chemical Engineering Through Educational Comics

Nethra Iyer, Northeastern University

Dr. Luke Landherr, Northeastern University

Bioengineering 101: A Design Challenge to Teach High School Students about How Engineers Design and Build Complex Systems

Prof. Adam T. Melvin, Clemson University

Using Comics to Promote Student Interest in the Breadth and Depth of Chemical Engineering

Ira Hysi, Northeastern University

Dr. Luke Landherr, Northeastern University

T506A - Civil Engineering Division (CIVIL) Technical Session - Professional Practice 1

3:15 P.M. - 4:45 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Kristen Sanford, Lafayette College; Matthew Lovell, Rose-Hulman Institute of Technology

Exploring Civil Engineering and Construction Management Students' Perceptions of Equity in Developing Infrastructure Resilience

Miss Rubaya Rahat, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Navigating Ethical Dilemmas in Civil and Environmental Engineering: Ethical Case Studies Based on Experiences of Early-Career Engineers

Dr. Pinar Omur-Ozbek, Colorado State University

Dr. Rebecca A. Atadero, Colorado State University

Dr. Amir Hedayati Mehdiabadi, University of New Mexico

Chika Winnifred Agha, Colorado State University

Carlotta Duenninger

Social Justice within Civil and Environmental Engineering: Curricular Interventions and Professional Implications

Dr. Rebekah Oulton, California Polytechnic State University, San Luis Obispo

Teaching First-year Students to See Infrastructure Issues as Equity Issues

Dr. Kristen L. Sanford P.E., Lafayette College

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Dr. Rhonda K. Young, Gonzaga University

The role of Socio-technical Design Challenges in the Early Formation of Civil Engineers

Sydney Donohue Jobe, University of New Mexico

Ms. Madalyn Wilson-Fetrow, University of New Mexico

Mr. Ruben D. Lopez-Parra, Purdue University

Paris Eisenman, University of New Mexico

Ethan Kapp, University of New Mexico

Carl Lyle Abadam, University of New Mexico

Dr. Vanessa Svihla, University of Texas at Austin

Prof. Anjali Mulchandani, University of New Mexico

T507 - College Industry Partnerships Division (CIP) Technical Session 2

3:15 P.M. - 4:45 P.M., C125, OREGON CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

Moderator: Shannon O'Donnell, Siemens Digital Industries Software

Engagement in Practice: A Road Map for Academia and Non-Profit Collaboration

Kerrie Danielle Hooper, Florida International University

Dr. Trina L. Fletcher, Florida International University

Edward Collins, National Society of Black Engineers

Dr. Rochelle L. Williams, Northeastern University

Ahlam Alharbi, Imam Abdulrahman Bin Faisal University

Madiha Qasim, North Carolina State University

Examining the Effectiveness of Industrial Partnerships in Capstone Courses: A Qualitative Study through the Lens of Engineering Undergraduates

Dr. Eileen Fong, Nanyang Technological University

Dr. Ibrahim H. Yeter, Nanyang Technological University

Shamita Venkatesh, Nanyang Technological University

Innovating Motivation Mechanisms and Interaction Channels of University-Industry Educational Collaboration: A Pilot Chinese Case

Dr. Lina Zheng, Beihang University

Dr. Ying Lyu, Beihang University

Planning a Trucking Research Consortium using Industry Customer Discovery and Innovation Ecosystem Mapping

Prof. Mohamed Razi Nalim, Indiana University-Purdue University Indianapolis

Nirmala Priyanka Manthripragada, Indiana University-Purdue University Indianapolis

Cliff Campbell, Indiana University-Purdue University Indianapolis

Sabya Mishra, The University of Memphis

Clayton Nicholas, Indiana University

WIP: Increasing Engagement with Industrial Advisory Board Members through Asynchronous Assessment of Elevator Pitches

Dr. Walter W. Schilling Jr., Milwaukee School of Engineering

Dr. Derek David Riley, Milwaukee School of Engineering

T508 - Spotlight on Diverse Learners

3:15 P.M. - 4:45 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Deborah Moyaki, University of Georgia

This session focuses on topics related to diversity, equity, inclusion, and belonging in computing education.

Developing Lafayette Park Minecraft World to Broaden Participation in Computing

Dr. Lily Rui Liang, University of the District of Columbia

Rui Kang

Carlos Sac Mendoza, University of the District of Columbia

Equitable Computing Education

Dr. Manuel A. Pérez-Quiñones, University of North Carolina

Dr. Debarati Basu, Embry Riddle Aeronautical University

Utilizing Natural Language Processing for Assisting in Writing English Sentences

Mr. Sung Je Bang, Texas A&M University

Dr. Saira Anwar, Texas A and M University

Barriers to Conducting Primary and Secondary Computing Education Research

Miss Isabella Gransbury, North Carolina State University

Monica M. McGill, Institute for Advancing Computing Education

Leigh Ann DeLyser

Student Preferences and Performance in Active Learning Online Environments

Minkyung Lee, Pennsylvania State University

Dr. Stephanie Cutler, Pennsylvania State University

Dr. Sarah E. Zappe, Pennsylvania State University

Deb Jordan, Colorado School of Mines

Dr. Sam Spiegel, Colorado School of Mines

Dr. Ibukun Samuel Osunbunmi, Pennsylvania State University

T508B - Programming Education 2

3:15 P.M. - 4:45 P.M., B117, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Steven Barrett, University of Wyoming

This is the first of two programming education sessions. The papers in this session focus on topics related to teaching students how to program.

Evaluating the Impact of Additional Examples and Explanation on Student Outcomes in a Free Online Python Course

Mr. Timothy James, Purdue University

Dr. Alejandra J. Magana, Purdue University

Student Experiences with Parsons Problems in a First-Year Engineering Course

Tyler James Stump, The Ohio State University

Abbey Darya Kashani Motlagh, The Ohio State University

Dr. Krista M. Kecskemety, The Ohio State University

Exploring the Impact of Exposing Command Line Programming to Early CS Majors (An HBCU Case Study)

Edward Dillon, Morgan State University

Krystal L. Williams, University of Georgia

Ashley Simone Pryor, Morgan State University

Theodore Wimberly Jr., Morgan State University

Mariah McMichael, Morgan State University

Abisola Mercy Arowolaju

Donald Bernard Davis, Morgan State University

Toluwanimi Ayodele, Morgan State University

Investigating How Student Attributes and Behaviors Relate to Learning Outcomes in a Free Online Python Programming Course

Mr. Timothy James, Purdue University

Dr. Alejandra J. Magana, Purdue University

Moving from Matlab to Python in a First-Year Engineering Programming Course: Comparison of Student Achievement and Assessment of Self-Learning

Dr. Robert Scott Pierce P.E., Western Carolina University

Dr. Chaitanya Borra, Western Carolina University

Shaking The Silos: Impact of Sequential Live Coding on Students' Performance and Perceptions

Kwansun Cho, University of Florida

Syeda Fizza Ali, Texas A&M University

Sung Je Bang, Texas A&M University

Dr. Saira Anwar, Texas A&M University

T509 - Broadening Perspectives in Construction Education

3:15 P.M. - 4:45 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Mostafa Batouli, The Citadel; Luciana Debs, Purdue University Programs

Technological Infrastructure Equity for Minority Serving Institutions in Construction Education

Dr. Rachel Mosier, Oklahoma State University

Dr. Sanjeev Adhikari, Kennesaw State University

Dr. Sandeep Langar, The University of Texas at San Antonio

Dr. Tulio Sulbaran, The University of Texas at San Antonio

Assessing the Effectiveness of Educational Interventions on Digital Skills for Middle Schoolers in Underserved Communities. The TechSpark Immokalee Case Study on Digital Upskilling in the Construction Industry

Dr. Daniel Linares, Florida Gulf Coast University

Dr. Diana Marcela Franco Duran, University of Virginia

Dr. Kenneth Stafford Sands II, Auburn University

David Gutierrez, University of Virginia

Deyrel Diaz, Clemson University

Developing a Pedagogy for the Underrepresented Construction Trade Workforce to Aid in Resilient Post-Disaster Reconstruction

Ms. Claudia Calle Müller, Florida International University

Erika Judith Rivera, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Beyond the Classroom: Problem-Based Learning in Real Scenarios, Fostering Self-Efficacy and Sense of Belonging

Jose Manuel Fuentes-Cid

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Chile

Building Collapse: Tackling the Construction Quality Gap in Nigeria

Mr. Muritala Hassan Ayinla, University of Central Missouri

Dr. MariEtta Joleen Watson, University of Central Missouri

T510 - Continuing Professional Development Division Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Continuing, Professional, and Online Education Division (CPOED)

Moderator: Octavio Heredia, Arizona State University

This meeting is open to all interested in the Continuing Professional Development Division (CPDD).

T5101 - Engineering the Inclusive Mindset for the Future: Recommendations for Systemic Change in Undergraduate Engineering and Engineering Technology Education

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 202, OREGON CONVENTION CENTER

Sponsor: Professional Interest Council (PIC)

Speaker: Dr. Gary R. Bertoline, Purdue University at West Lafayette (COE)

The world's challenges today demand systemic change in engineering education and a growth mindset of the engineer. The rich history of the nation's engineers' extraordinary accomplishments brings hope that today's challenges to humanity can be addressed with systemic changes in engineering education based on a growth mindset in the classroom. This approach builds on the scientific and analytical mindset established by the Grinter Report and modernizes it to include known effective student-centered success practices.

With the threefold framework of (1) challenges facing humanity, (2) increasing the diversity of the engineering profession, and (3) developing a student-centric mindset in the preparation of engineers, the American Society for Engineering Education (ASEE) and the National Academy of Engineering (NAE), through the support of the National Science Foundation (NSF) have undertaken the task of reviewing the current state of engineering and engineering technology education to make recommendations that will advance the discipline of engineering education. A diverse group of people interested and dedicated to improving

engineering education came together to define a Call to Action to imagine and make recommendations for a new future of engineering education. This multi-year effort will guide engineering and engineering technology faculty and leaders through specific recommendations for changing curricula, pedagogy, and mindsets. The findings of this effort resulted in the Mindset Report, which will be presented.

T513 - Design in Engineering Education Division (DEED) - Engineering Design and First-Year Education

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Xiaoou Yang, University of Georgia

Will the First-Year Makers Please Stand Up? Understanding What Drives Student Choices in a First-Year Maker Experience

Dr. Elizabeth Marie Starkey, Pennsylvania State University
Dr. Nicolas F. Soria Zurita, Pennsylvania State University
Ms. Jessica Dolores Menold, Pennsylvania State University
Dr. Sarah C. Ritter, Pennsylvania State University
Prof. Matthew B. Parkinson, Pennsylvania State University

An Exploration of Conflict Asymmetry in a First-Year Engineering Design Project Team

Victoria Kerr, University of Toronto
Dr. Emily Moore P.Eng., University of Toronto
Ms. Patricia Kristine Sheridan, University of Toronto

Enabling K-14 Educators in Developing and Deploying Advanced Manufacturing Curricula

Dr. MD B. Sarder, Bowling Green State University
Mohammad Mayyas, Bowling Green State University
Mohammed Abouheaf, Bowling Green State University
Dr. Gül E. Kremer, University of Dayton

Integrated and Multi-Disciplinary First-Year Engineering Drone Design Project

Dr. Charles E. Baukal Jr. P.E., Oklahoma Baptist University

T513B - Design in Engineering Education Division (DEED) - Research Investigations in the Context of Design Education

3:15 P.M. - 4:45 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Elisabeth Kames, Florida Polytechnic University

Developing the Design Reasoning in Data Life-Cycle Ethical Management Framework

Dr. Senay Purzer, Purdue University
Dr. Carla B. Zoltowski, Purdue University
Dr. Wei Zakharov, Purdue University
Joreen Arigye, Purdue University

An Investigation of Engineering Students' Information Sorting Approaches Using an Open-Ended Design Scenario

Chijhi Chang, Purdue University
Dr. Robert P. Loweth, Purdue University
Dr. Kelley E. Dugan, Rose-Hulman Institute of Technology

A Transdisciplinary Knowledge Approach Using a Holistic Design Thinking Methodology for Engineering Education

Dr. Mark J. Povinelli, Syracuse University

Investigating Students' Development of Computer-Aided Design Self-Efficacy: An Analysis of Pre-Course CAD Exposure

Ms. Samantha Butt, University of Toronto
Ms. Elizabeth DaMaren, University of Toronto
Dr. Alison Olechowski, University of Toronto

Examining the Effect of Design Stimuli on Perception of Peer Contribution in Design Teams

Corey James Kado, Florida Polytechnic University
Dr. Elisabeth Kames, Florida Polytechnic University

T514A - Educational Research and Methods Division (ERM) Technical Session 16

3:15 P.M. - 4:45 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jacqueline Rohde, Georgia Institute of

Technology

Capturing First- and Second-Year Master's Engineering Students' Perceptions of Support in Their Transitions to Graduate School

Dr. Catherine G. P. Berdanier, Pennsylvania State University

Dr. Julio Urbina, Pennsylvania State University

Prof. Reginald F. Hamilton, Pennsylvania State University

Dr. Catherine L. Cohan, Pennsylvania State University

Dr. Tonya L. Peeples, Pennsylvania State University

Dr. Cynthia Howard Reed, Pennsylvania State University

Design and Development of Survey Instrument to Measure Engineering Doctoral Students' Perceptions of Their Teaching Preparedness

Omar Jose Garcia, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Engineering Doctoral Students' Expectations, Reflections, and Concerns Regarding Future in Academia

Omar Jose Garcia, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Exploring Variance in Undergraduate Research Participation: A Quantitative and Qualitative Investigation among Students with Differing Levels of Involvement

Dr. Andrew Olewnik, University at Buffalo, The State University of New York

Dr. Monica Lynn Miles, University at Buffalo, The State University of New York

Hasan Asif, University at Buffalo, The State University of New York

Insights from a Multi-Institutional Virtual Engineering Education Graduate Program Showcase

Dr. Cheryl A. Bodnar, Rowan University

Dr. Rocio C. Chavela Guerra, Rowan University

Dr. Adrienne Decker, University at Buffalo, The State University of New York

Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Dr. Senay Purzer, Purdue University

The State of Engineering Graduate Student Researcher Self-Awareness

Jasmine Smith, University of Florida

Dr. David J. Therriault, University of Florida

Dr. Jeremy A. Magruder Waisome, University of Florida

T514B - Educational Research and Methods Division (ERM) Technical Session 17

3:15 P.M. - 4:45 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jennifer Brown, Clemson University

Effectiveness of Scrum in Enhancing Feedback Accessibility among Undergraduate Research Students: Insights from Integrated Feedback Dynamics Framework

Sakhi Aggrawal, Purdue University

Dr. Alejandra J. Magana, Purdue University

Keylogging in a Web-Based Code Editor for Fine-Grained Analysis and Early Prediction of Student Performance

Xavier Rene Plourde, University of California, Berkeley

Dr. Garrett Ethan Katz, Syracuse University

Mapping the Landscape of Digital Accessibility in Computer Science Education: A Mapping Literature Review

Ms. Morgan Haley McKie, Florida International University

Dr. Alexandra Coso Strong, Florida International University

Supplemental Instruction: Shaping Future Engineers

Mr. Zachary Miller, University of South Alabama

Prof. Sean Walker, University of South Alabama

Rachel Chai, University of South Alabama

WIP: Instructors' Framing of their Instructional Practice

Prof. Milo David Koretsky, Tufts University

Dr. Amanda Clara Emberley, California Polytechnic State University, San Luis Obispo

John Galisky, University of California, Santa Barbara

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

Work-In-Progress: Enhancing Engineering Education: A Comparative Analysis of Low-Cost Desktop Learning Module Impact on Student Engagement and Outcomes

Oluwafemi J. Ajeigbe, Texas A&M University

Talodabiolorun Anne Oni, Washington State University

Oluwafemi J. Sunday, Washington State University

Dr. Olusola Adesope, Washington State University

Mr. Olufunso Oje, Washington State University

Prof. Bernard J. Van Wie, Washington State University

Jacqueline Gartner Ph.D., Campbell University

Dr. Prashanta Dutta, Washington State University

David B. Thiessen, Washington State University

T514C - Educational Research and Methods Division (ERM) Technical Session 18

3:15 P.M. - 4:45 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Javeed Kittur, University of Oklahoma

Enhancing Engineering Education through Transfer of Learning, Authentic Assessment, and Engineering Simulations

Dr. Alfred C. H. Tan, Singapore Institute of Technology

Dr. Christian Della, University of Glasgow

Mr. Jamil Jasin, Singapore Institute of Technology

Dr. Li Hong Idris Lim, National University of Singapore

Victor Wang

Chee Ming Ong

Yun Mei Elisa Ang

Arturo Molina-Cristobal, University of Glasgow

REU Program Evaluation: A Valuable Tool for Studying Undergraduate Socialization in Engineering

Dr. Caitlin D. Wylie, University of Virginia

Mr. Kent A. Wayland, University of Virginia

Mr. Andy Wang, University of Virginia

Self-Evaluation of the Introduction to Scientific Research Course Design Based on the Affinity Research Groups (ARG) Model

Dr. Navarun Gupta, University of Bridgeport

Dr. Junling Hu, University of Bridgeport

Dr. Ioana A. Badara, Post University

Dr. Buket D. Barkana, The University of Akron

Dr. Deana A. DiLuggo, University of Bridgeport

The Success and Retention of Students Using Multiple-Attempt Testing in Fundamental Engineering Courses: Dynamics and Thermodynamics

Dr. Marino Nader, University of Central Florida

Michelle Taub, University of Central Florida

Harrison N. Oonge, University of Central Florida

Prof. Hyoung Jin Cho, University of Central Florida

Sierra Outerbridge, University of Central Florida

WIP: Assessment of Student Retention and Satisfaction in Computer Science Service Courses When Using Competency-Based Grading and Assignment Choice

Mr. Robert Harold Lightfoot Jr., Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

WIP: Unannounced Tests and Examinations to Improve Student Performance and Build Academic Integrity

John Mario Bonilla

Miguel Santiago Valarezo

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito

Work in Progress: Assessing the Reliability of the Tactile Mental Cutting Test When Sampling Engineering Statics Students' Spatial Ability

Daniel Kane, Utah State University

Marlee Jacobs, Utah State University

Rosemary Yahne, Utah State University

Dr. Wade H. Goodridge, Utah State University

T514D - Special Session: Making JEE's Publication Process More Visible

3:15 P.M. - 4:45 P.M., F152, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Speakers: Dr. David B. Knight, Virginia Polytechnic Institute and State University; Dr. Adam R. Carberry, The Ohio State University; Dr. Nadia N. Kellam, Arizona State University

The *Journal of Engineering Education* is one of the premier scholarly publications sponsored by the American Society for Engineering Education and serves as an important mechanism for members of the Educational Research Methods Division to share their scholarly work with the global engineering-education research community. How research moves from its infant stage through the publication process can often be challenging to understand, particularly for graduate students or early-career faculty. The purpose of this special session/panel is to help researchers and reviewers better understand the publication processes associated with the *Journal of Engineering Education*.

T515 - Advancing Online and Hybrid Learning in Engineering Education

3:15 P.M. - 4:45 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Joseph Hoffbeck, University of Portland; Juan Alvarez, University of Illinois at Urbana - Champaign

This session explores the advancements in online and hybrid learning within engineering education, focusing on engagement strategies, remote labs, and collaborative experiences.

Further Strategies to Increase Engagement in 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

Dr. Luke Lester, Virginia Polytechnic Institute and State University

Max Mikel-Stites, Virginia Polytechnic Institute and State University

Dr. Kenneth Reid, University of Indianapolis

Muhammad Dawood, New Mexico State University

Introductory Circuits and Electronics Remote Labs: Design, Implementation, and Lessons Learned

Dr. Mona ElHelbawy, University of Colorado Boulder

Eric Bogatin, University of Colorado Boulder

Implementing Collaborative Online Lab Experiences to Facilitate Active Learning

Dr. Gleb Tcheslavski, Lamar University

Prof. Julia Yoo

Prof. Selahattin Sayil, Lamar University

Interactions with Undergraduate Academic and Career Advisors in a Signals and Systems Base Course

Dr. Mary Yvonne Lanzerotti, Virginia Polytechnic Institute and State University

Dr. Scott Dunning P.E., 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

Dr. Luke Lester, Virginia Polytechnic Institute and State University

Max Mikel-Stites, Virginia Polytechnic Institute and State University

Dr. Kenneth Reid, University of Indianapolis

Muhammad Dawood, New Mexico State University

Student Earnestness in an Interactive Online Controls Textbook When Answers are Available

Ms. Jenny Welter, Wiley

Dr. Nikitha Sambamurthy, zyBooks, A Wiley Brand

Dr. Ryan Barlow, zyBooks, A Wiley Brand

Dr. Gregory Mason P.E., zyBooks, A Wiley Brand

Ms. Linda Ratts, Wiley

Mr. Bryan Gambrel, Wiley

Dr. Adrian Rodriguez, zyBooks, A Wiley Brand

Dr. Mohsen Sarraf, University of New Haven

Yasaman Adibi, zyBooks, A Wiley Brand

Mohsen Sarraf, zyBooks, A Wiley Brand

T515B - Innovative Pedagogical Techniques in Engineering Education

3:15 P.M. - 4:45 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Kevin Wedeward, Fort Lewis College; Mahdi Yazdanpour, Northern Kentucky University

This session showcases innovative pedagogical techniques that enhance learning in engineering education, with discussions on graph-based optimization, concept mapping, and interactive web-based systems.

Enhancing Understanding and Retention in Undergraduate ECE Courses through Concept Mapping

Prof. Yang Victoria Shao, University of Illinois at Urbana

- Champaign

Juan Alvarez, University of Illinois at Urbana - Champaign

Prof. Olga Mironenko, University of Illinois at Urbana - Champaign

Microelectronics Research and Global Competencies: Unpacking Research Abroad Experiences of Engineering Students

Chibuzor Joseph Okocha, University of Florida

Gloria J. Kim, University of Florida

Jin W. Choi, Michigan Technological University

Prof. Yong Kyu Yoon

Power Electronic Feedback Control of a DC-DC Converter Using an Arduino Uno

Mr. Junhyung Park, United States Air Force Academy

John Ciezki, United States Air Force Academy

Improved Student Learning in a Circuits Course with a Novel Web-Based System

Dr. Fred W. DePiero, California Polytechnic State University, San Luis Obispo

Dr. Lynne A. Slivovsky, California Polytechnic State University, San Luis Obispo

Prof. Dominic J. Dal Bello, Allan Hancock College

WIP: A Novel Learning Log Application for Classifying Learning Events Using Bloom's Taxonomy

Dr. Alex M. Phan, University of California, San Diego

Jenna Metera, University of California, San Diego

Sonia Fereidooni, University of California, San Diego

Cham Yang, University of California, San Diego

Dr. Minju Kim, University of California, San Diego

Dr. Carolyn L. Sandoval, University of California, San Diego

Dr. Phuong Truong, University of California, San Diego

T516 - ECCNED Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 1A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Free ticketed event

T518 - Engineering Design Graphics Division (EDGD) Technical Session 2

3:15 P.M. - 4:45 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Engineering Design Graphics Division (EDGD)

Moderator: Erik Schettig, North Carolina State University at Raleigh

Directions in Automating CAD Modeling Assessment

Dr. Derek M. Yip-Hoi, Western Washington University

Jack P. Wilson, North Carolina State University

Effectiveness of Using Animated Versus Static Infographics

Asefeh Kardgar, Purdue University

Dr. Anne M. Lucietto, Purdue University

WIP: Designing an Immersive Robotics Curriculum with Virtual Reality

Jordan Osborne, Illinois State University

Jeritt Williams, Illinois State University

Dr. Yi-hsiang Isaac Chang, Illinois State University

Sketching Instruction in Engineering Design with an Intelligent Tutoring Software

Dr. Hillary E. Merzdorf, Texas A&M University

Ms. Donna Jaison, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Prof. Wayne Li, Georgia Institute of Technology

Dr. Vimal Kumar Viswanathan, San Jose State University

A Targeted Approach to Improving Spatial Visualization Skills of First-Year Engineering Students

Dr. Qi Dunsworth, Pennsylvania State University

Mr. Dean Q. Lewis, Pennsylvania State University

T5195A - DSA Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Bala Maheswaran, Northeastern University; Ilya Grinberg, SUNY Buffalo State University

The DSA Constituent Committee business meeting serves as a formal assembly bringing together DSA members and

individuals with an interest in the ASEE conferences. Its primary aim is to engage in discussions and strategic planning concerning various facets of DSA, encompassing progress assessments, ongoing initiatives, future preparations, officer elections, and more.

T5195B - DSA Technical Session 5

3:15 P.M. - 4:45 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Richard Harris, Northeastern University; Farnoosh Brock

Imagining and Achieving Data Science

Envisioning and Realizing a Statewide Data Science Ecosystem

Dr. Karl D. Schubert FIET, University of Arkansas
Lee Shoultz, University of Arkansas
Shantel Romer, University of Arkansas
Stephen R. Addison, IEEE Educational Activities
Tina D. Moore
Laura J. Berry
Jennifer Marie Fowler, Arkansas State University
Lee Shoultz, University of Arkansas
Christine C. Davis

Bridging Theory and Practice: Building an Inclusive Undergraduate Data-Science Program

Dr. Mehmet Ergezer, Wentworth Institute of Technology
Dr. Mark Mixer, Wentworth Institute of Technology
Dr. Weijie Pang, Wentworth Institute of Technology

Data-Science Perceptions: A Textual Analysis of Reddit Posts from Non-Computing Engineers

Mr. Nicolas Leger, Florida International University
Maimuna Begum Kali, Florida International University
Stephanie Jill Lunn, Florida International University

Developing an Instrument for Assessing Self-Efficacy Confidence in Data Science

Dr. Safia Malallah, Kansas State University
Dr. Ejiro U. Osiobe, Baker University
Zahraa Marafie, Kuwait University
Patricia Henriquez-Coronel
Lior Shamir, Kansas State University
Ella Lucille Carlson, Kansas State University
Joshua Levi Weese, Kansas State University

Preparing Undergraduate Data Scientists for Success in the Workplace: Aligning Competencies with Job Requirements

Dr. Duo Li, Shenyang Institute of Technology
Dr. Elizabeth Milonas, New York City College of Technology
Dr. Qiping Zhang, Long Island University

T520A - Special Session: Origins, Evolution, and Prospects for the Future of the Online Ethics Center (OEC)

3:15 P.M. - 4:45 P.M., REGENCY BALLROOM D , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Ethics Division (ETHICS)

Speakers: Dr. Rosalyn W. Berne, University of Virginia; Dr. Justin L. Hess, Purdue University at West Lafayette (COE)

This special session will facilitate a conversation about the origins and evolution of the Online Ethics Center (OEC), and prospects for its future. For over 30 years, OEC has provided engineers, scientists, faculty, and students with resources for understanding and addressing ethically significant issues that arise in scientific and engineering practice and from the developments of science and engineering. It has served those who promote learning, and those who advance understanding of responsible research and practice in engineering, science, and social sciences. OEC owes its existence to the founding leadership of Caroline Whitbeck, who was at MIT at the time. In 2007, Whitbeck, then at Case Western Reserve, and William A. Wulf, NAE past president, transferred the OEC to the NAE. There, the OEC received three National Science Foundation grants. The first supported OEC efforts to assist individuals and institutions in complying with the America COMPETES Act requirement to provide "appropriate training and oversight in the responsible and ethical conduct of research," achieved through the restructuring of the OEC website to facilitate searches and provide a more user-friendly interface. The second enabled the OEC to become the Online Resource Center for Ethics Education in Engineering and Science, a significant expansion to include resources for all the sciences that NSF supports. The third supported the OEC's efforts to help transform education in the responsible conduct of research, foster an ethical culture in education and practice, and become part of a comprehensive approach to improve ethical culture and integrity at US research and STEM educational institutions. In 2020, the OEC was transferred

to University of Virginia, and a change of scope shifted the focus of that grant to development of Communities of Practice (CoPs). NSF's funding will end in 2024, after which the OEC must become a self-sustaining endeavor. The session will provide an opportunity for interested parties to learn about the OEC's strategic planning process for achieving that sustainability, to express their interests and ideas about OEC's future, and to potentially engage in the steps needed towards realization of that vision.

T521 - Engineering Libraries Division (ELD) Technical Session 3

3:15 P.M. - 4:45 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Constructing Consistent Comprehensive Searches in Large Engineering Databases—Tips and Recommendations for Literature Reviews

Dr. Sarah Over, Virginia Tech

C. Cozette Comer, Virginia Polytechnic Institute and State University

Engineering Research in Transition: Assessing Research Behavior while Adapting to Access Changes in Library Resources

Hannah Rempel, Oregon State University

Adam Lindsley, Oregon State University

Taylor Ralph, Oregon State University

Gray Goldmine: Charting the Course to Engineering Literature's Treasures

Jamie M. Niehof, University of Michigan

Sarah Barbrow, University of Michigan

Mr. Paul Grochowski, University of Michigan

Luesoni Kuck, University of Michigan

Kiva Construction: Tracking Indigenous Techniques Using Article Indexing and Classification—Research in Progress

Ms. Jeanette M. Mueller-Alexander, Arizona State University

T523 - Hands-On Learning in ET I

3:15 P.M. - 4:45 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderators: Hamid Eisazadeh; Arif Sirinterlikci, Robert Morris University

Practical Learning in Microcontroller Courses Using Novel MISL-ASE Embedded System Development Boards

Dr. Gang Sun, Northern Kentucky University

Design of a PLC System Simulator and Application to Teaching Programmable Logic Controller Course Online

Dr. Wenle Zhang, University of Arkansas, Little Rock

Prototyping Low-Cost Tribometer with Block on Ring Configuration for the Optimization of Metal-Forming Applications

Dr. Immanuel Edinbarough, The University of Texas, Rio Grande Valley

Dr. Jose Jaime Taha-Tijerina, The University of Texas, Rio Grande Valley

Enhancing MET Education: Innovation through Laboratory Equipment Development

Dr. Carmen Cioc, The University of Toledo

Dr. Sorin Cioc, The University of Toledo

A Self-Efficacy Analysis on the Impact of a Thermoelectric Cooling System Project in an Applied Thermodynamics Course

Dr. Krystal Corbett Cruse, Louisiana Tech University

Mr. Casey Kidd, Louisiana Tech University

William C. Long, Louisiana Tech University

T523B - ECET Department Heads Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 2, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

T523C - Assessment and Continuous Improvement

3:15 P.M. - 4:45 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Meenakshi Narayan, Miami University; Weihang Zhu, University of Houston - COE

ABET Assessment Program for a Bachelor of Science in Engineering Technology Degree – Strategies and Best Practices

Dr. Qudsia Tahmina, The Ohio State University

Ms. Kathryn Kelley, The Ohio State University

Demonstrating a Continuous Improvement Process in Action with an Initiative to Adopt Computer Algebra System Calculators in an Engineering Technology Degree Program

Dr. John W. Blake P.E., Austin Peay State University

Digitalization of ABET Assessment, Evaluation, Continuous Improvement, and Material Display Techniques – A Verifiable and Effective Tool for Successful ABET Accreditation

Prof. Gary D. Steffen, Purdue University, Fort Wayne

Omonowo David Momoh, Purdue University, Fort Wayne

Long-term Impact of a Semester-long Multidisciplinary Service-Learning Assignment in a Fluid Mechanics Course

Dr. Orlando M. Ayala, Old Dominion University

Dr. Kristie Gutierrez, Old Dominion University

Isaac Koduah Kumi, Old Dominion University

Mr. Francisco Cima

Dr. Stacie I. Ringleb, Old Dominion University

Dr. Krishnanand Kaipa, Old Dominion University

Danielle Marie Rhemer, Old Dominion University

Dr. Pilar Pazos, Old Dominion University

Dr. Jennifer Jill Kidd, Old Dominion University

T524 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 5

3:15 P.M. - 4:45 P.M., OREGON BALLROOM 203, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Sunay Palsole, Texas A&M University; R. Keith Stanfill, The University of Tennessee, Knoxville

Evaluation and Assessment of Entrepreneurship Education

Assessing Entrepreneurial Mindset in Computer Science Students Using Concept Mapping

Arwen Elizabeth Pearson, University of Washington

Mr. Simon Njoroge, University of Washington

Menaka Abraham, University of Washington

Dr. Heather Dillon, University of Washington

The First-Year Engineering Student Entrepreneurial Mindset: A Longitudinal Investigation Utilizing Indirect Assessment Scores

Sherri M. Youssef, The Ohio State University

Miss Amanda Marie Singer, The Ohio State University

Carter James Huber, The Ohio State University

Dr. Rachel Louis Kajfez, The Ohio State University

Dr. Krista M. Kecskemety, The Ohio State University

WIP: Evaluating Entrepreneurially-minded Learning in Course-based Undergraduate Research Experiences

Dr. Jeffrey Walters, University of Washington

Dr. Kayt Frisch, George Fox University

Dr. Zaher Kmail, University of Washington

Dr. Heather Dillon, University of Washington

Dr. Chris Sharp, George Fox University

Dr. Ekundayo Shittu, The George Washington University

WIP: Exploring Concept Maps as an Innovative Assessment Tool in Teaching and Learning Outside the Classroom

Chloe Grace Hincher, North Carolina State University

Dr. Olgha Bassam Qaqish, North Carolina State University

T525 - Environmental Engineering: Solving Planetary Health Problems

3:15 P.M. - 4:45 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Daniel Oerther, Missouri University of Science and Technology; Andrew Pfluger, United States Military Academy

Speaker: Dr. Daniel B. Oerther P.E., Missouri University of Science and Technology

The U.S. Bureau of Labor Statistics has recently updated the description of environmental engineers to state that "environmental engineers use engineering disciplines in developing solutions to problems of planetary health." The panel will discuss how environmental engineers enhance both human and ecological health now and in the future.

T526B - ELOS Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Natasha Smith

Annual business meeting of the Experimentation and

Laboratory-Oriented Studies Division (ELOS)

T527A - First-Year Programs Division WIPS 1: Projects, Teams, and Portfolios

3:15 P.M. - 4:45 P.M., E148, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Helen Jung; Constantine Mukasa, Northeastern University

This session features a collection of works in progress focused on project work, teams, and the development of student portfolios. Expect a discussion-oriented session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

WIP: Implementing a Community Engagement Project in a First-Year Foundations of Engineering Course

Matthew James, Virginia Polytechnic Institute and State University

Dr. Juan David Ortega-Alvarez, Virginia Polytechnic Institute and State University / Universidad EAFIT

Cassondra Wallwey, Virginia Polytechnic Institute and State University

Dr. Michelle Soledad, Virginia Polytechnic Institute and State University

Work in Progress: Project-Based, Multilevel Teamwork for First-Year Engineering Program

Dr. Fayekah Assanah, University of Connecticut

Prof. Jorge Paricio Garcia Ph.D., HRM, MID, University of Connecticut

Jake Scoggin, University of Connecticut

Martin Huber, University of Connecticut

Dr. Michael Cohen, University of Connecticut

Dr. Stephany Santos, University of Connecticut

Kathrine Pavel Ionkin, University of Connecticut

Sean Patrick Hirt, University of Connecticut

Britney Russell, University of Connecticut

WIP: Investigating the Impact of Community-Inspired Design Projects

Dr. Abigail Clark, Ohio Northern University

WiP: Comparing Course Topic Perceptions between Different Hands-On Projects

Dr. Nicholas Hawkins, University of Louisville

Dr. Brian Scott Robinson, University of Louisville

Dr. James E. Lewis, University of Louisville

Dr. Angela Thompson P.E., University of Louisville

WIP: Using ePortfolios to Enable Life Project Mentoring Among First-Year Engineering Students

Dr. Constanza Miranda, Johns Hopkins University

Mareham Essam Yacoub, Johns Hopkins University

Mrs. Rachel Saperstein McClam, Johns Hopkins University

Work in Progress: Teamwork Predisposition as an Indicator of Team Effectiveness in First-Year Engineering

Mr. Fazel Ranjbar, University of Cincinnati

Dr. Jutshi Agarwal, University at Buffalo, SUNY

Dr. P.K. Imbrie, University of Cincinnati

Dr. Junqiu Wang, University of Cincinnati

Work in Progress: Igniting Engineering Fundamentals—A Holistic Approach to First-Year Engineering with Entrepreneurial-Minded Learning and a Project-Based Exploration of Mars

Dr. Danahe Marmolejo, Saint Louis University

Dr. Chris Carroll P.E., Saint Louis University

Dr. Michael A. Swartwout, Saint Louis University

Dr. Kyle Mitchell, Saint Louis University

Raymond LeBeau, Saint Louis University

Dr. Gary Bledsoe, Saint Louis University

Susheel Singh, Saint Louis University

Dr. Huliyar S. Mallikarjuna, Saint Louis University

Dr. Scott A. Sell, Saint Louis University

WIP: The Missing Link? Providing Honors Students a Self-Paced Assignment That Fits Their Needs

Dr. Aysa Galbraith, University of Arkansas

Dr. Heath Aren Schluterman, University of Arkansas

Ms. Gretchen Scroggin, University of Arkansas

Latisha Puckett, University of Arkansas

T527B - First-Year Programs Division WIPS 2: Students and Peer Mentors

3:15 P.M. - 4:45 P.M., A106, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Natalie Van Tyne, Virginia Polytechnic Institute and State University; Xianglong Wang, University of California, Davis

This session presents a collection of works in progress focused on students, their experience in the first year, and how to support them including via peer mentorship. Expect a discussion-oriented session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

First-Year Engineering Students, Social Media, and Course Delivery Preferences

Dr. Rachel Mosier, Oklahoma State University

Dr. Heather N. Yates, Oklahoma State University

Prof. Laura Kay Emerson, Oklahoma State University

Prof. Carisa H. Ramming, Oklahoma State University

WIP: The First-Year Engineer's Learning Journey

Dr. Sarah Tan, Michigan Technological University

Dr. Amber Kemppainen, Michigan Technological University

Ms. Mary Raber, Michigan Technological University

Dr. A.J. Hamlin, Michigan Technological University

Dr. Matt Barron, Michigan Technological University

Work In Progress: Impact of Collaborative Learning Strategies on Anxiety Reduction in Introductory Programming Courses

Dr. Joseph Ekong, Western New England University

Dr. Arnab A. Purkayastha, Western New England University

Dr. Gladys Ekong

Student Perspectives on Skills Required in Engineering and Computing Sciences Courses

Dr. Atheer Almasri, West Virginia University

Dr. Todd R. Hamrick, West Virginia University

Dr. Carter Hulcher, West Virginia University

Dr. Akua B. Oppong-Anane, West Virginia University

Dr. Xinyu Zhang, Purdue University

Dr. Lizzie Santiago, West Virginia University

Work in Progress: Establishing a Peer-Mentoring Program for Transfer First-Year Engineering Students

Mrs. Leslie Bartsch Massey, University of Arkansas

Mr. Chris Cagle

Work in Progress: A Comparative Case Study Exploring Sense of Belonging in First-Year Seminars

Dr. Nusaybah Abu-Mulaweh, The Johns Hopkins University

Dr. Constanza Miranda, The Johns Hopkins University

Alissa Burkholder Murphy, The Johns Hopkins University

Prof. Jenna Frye, The Johns Hopkins University

Work in Progress: Transforming the Freshman Engineering Experience through Peer-Mentorship and Professional Competency Workshops

Tristan Hernandez, University of Texas at El Paso

Ms. Sarah Huizar, University of Texas at El Paso

Dr. Diane Elisa Golding, University of Texas at El Paso

Dr. Peter Golding P.E., University of Texas at El Paso

Juan Jose Ochoa Jr., University of Texas at El Paso

Dr. Victor Manuel Garcia Jr., US Army Engineer Research and Development Center

Work in Progress: Teaching Engineering Students to Self-Transform: Parallelisms between Product Innovation and Student Career Path Planning

Dr. Noe Vargas Hernandez, The University of Texas, Rio Grande Valley

Dr. Javier Ortega, 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. Eleazar Marquez, The University of Texas, Rio Grande Valley

T527C - First-Year Programs Division WIPS 3: Courses and Curricula

3:15 P.M. - 4:45 P.M., E141, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Lakshmi Raju, Georgia Institute of Technology; Angela Thompson, University of Louisville

This session is 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.

Work in Progress: Launching an Equitable and Inclusive Human-Centered Pathway to Engineering

Prof. Petra Bonfert-Taylor, Dartmouth College

Dr. Vicki V. May P.E., Dartmouth College

Work In Progress: Finding Correlation Between Multiple Math Placement Methods and Grades in First Math Courses for Freshmen Engineering Students in a New Engineering Program

Dr. Jeffrey David Carvell, Marian University

Dr. Sarah Klanderman, Marian University

Salomon Turgman Cohen, Marian University

Work in Progress: A Novel Two-Semester Course Sequence

that Integrates Engineering Design, Sociotechnical Skills, Career Development, and Academic Advising

Dr. Benjamin J. Laugelli, University of Virginia
Dr. Keith Andrew Williams, University of Virginia
Dr. Esther Tian, University of Virginia
Julia Lapan, University of Virginia
Shaylin Williams, University of Virginia
Dr. Deepyaman Maiti, University of Virginia
Ms. Anne Marguerite McAlister, University of Virginia
Benjamin Goldschneider, University of Virginia
Nicole Dufalla, University of Virginia
Anna Leyf Peirce Starling, University of Virginia
Dr. William H. Guilford, University of Virginia

Work in Progress: Evaluating the Current State of the First-Year Seminar Program at Penn State University

Prof. Bradley J. Sottile, Pennsylvania State University
Mrs. Abbie Canale, Pennsylvania State University
Ms. Yu Xia, Emporia State University
Dr. Tim Kane, Pennsylvania State University
Dr. Stephanie Cutler, Pennsylvania State University

Hands-On Modules for First-Year Civil Engineering Students

Dr. Andrew Paul Summerfield, Wentworth Institute of Technology
Will Cashel-Cordo
Hadi Kazemiroodsari, Wentworth Institute of Technology

Work in Progress: An "Engineering for Everyone" Class that Incorporates Modeling, Simulation, and Biomimicry into the Engineering Design Process

Dr. Richard Goldberg, University of North Carolina
Ehssan Nazockdast, University of North Carolina
Daphne Klotsa, University of North Carolina

WIP: The Necessity of an RBE-Tailored First-Year Programming Course in the Robotics Engineering Curriculum

Dr. Mahdi Agheli, Worcester Polytechnic Insitute
Dr. Greg Lewin, Worcester Polytechnic Institute
Prof. Markus Nemitz

Work in Progress: Engineering Analysis Laboratory Courses Complement First-Year Physics and Calculus

Bryan Ranger, Boston College
Dr. Avneet Hira, Boston College
Siddhartan Govindasamy, Boston College

T528 - Graduate Studies Division (GSD) Business Meeting

3:15 P.M. - 4:45 P.M., COLUMBIA 3 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Graduate Studies Division (GSD)

This event is the business meeting for the Graduate Studies Division (GSD). Everyone is welcome to attend.

T529 - IED Business Meeting

3:15 P.M. - 4:45 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Industrial Engineering Division (IND)

Moderator: Mckenzie Landrum, University of Florida

Annual Business meeting of the Industrial Engineering Division (IND). All division members are invited to attend. There will also be an election of new officers.

T530 - Computing and Information Technology Division (CIT) Technical Session 6

3:15 P.M. - 4:45 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Catia Silva, University of Florida; Reza Sanati-Mehrizy, Utah Valley University

SerenePulse: A Web App Pipeline for Real-time Physiological Monitoring Using rPPG and OpenAI LLMs

Mr. Sreekanth Gopi, Kennesaw State University
Nasrin Dehbozorgi, Kennesaw State University

Shifts in Perceptions of Career Pathways: The Impact of an S-STEM Program on Lower-Income Computing Students

Ms. Nivedita Kumar, Florida International University
Dr. Stephen Secules, Florida International University
Maimuna Begum Kali, Florida International University
Mrs. Tiana Solis, Florida International University
Dr. Atota Bedane Halkiyo, Arizona State University
Dr. Mark Allen Weiss, Florida International University
Dr. Michael Georgiopoulos, University of Central Florida
Mrs. Jacqueline Faith Sullivan, University of Central Florida

Dr. Ken Christensen P.E., University of South Florida

Angela Estacion

Students' Perception of the Effectiveness of Active Learning in an Industrial Engineering Program's Management Information System Course

Roberto Patricio Carú

Dr. Juan Felipe Calderón, Universidad Andres Bello, Viña del Mar, Chile

Task, Knowledge, Skill, and Ability: Equipping the Small-Medium Businesses Cybersecurity Workforce

Aadithyan Vijaya Raghavan, Cleveland State University

Dr. Chansu Yu, Cleveland State University

T532 - International Division (INTL) Technical Session: International Programs and Curricula II

3:15 P.M. - 4:45 P.M., D137, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Phillip Sanger, Purdue University at West Lafayette (COE)

This session will cover designing sustainable global engineering courses, programs, communities, and partnerships; enhancing learning in engineering education abroad in various modalities and durations; global innovation and trends in international education and STEM partnerships; international program development, language integration, and credit transfer; and international engineering programs and courses: case studies and best practices.

Factors Impacting the Development of Intercultural Competence in Engineering Students' Long-term Study Abroad

Dr. Sigrid Berka, The University of Rhode Island

Is Curriculum Complexity Related to Study Abroad Participation? A Cross-Major Comparison at One University

Dr. Kirsten A. Davis, Purdue University

Mengzhou Chen, Purdue University

Amanda Danielle Wolf, Purdue University

Issues in Establishing a Sino-American Instructional Site

Dr. James N. Warnock, University of Georgia

Understanding Experiences of Engineering Students on Faculty-Led Internship Abroad Programs

Ms. Pingchien Neo, University of Florida

Dr. Elliot P. Douglas, University of Florida

Associating Sustainability Literacy with educational level of Industrial Engineering Students

Sandra Jennina Sanchez, Florida International University

Jose Daniel Ballen

Milton Januario Rueda Varon, Universidad Ean

Douglas Lee Robertson, Florida International University

T533C - Pre-College Engineering Education Division Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Pre-College Engineering Education Division (PCEE)

Business Meeting

T534 - LEES Business Meeting

3:15 P.M. - 4:45 P.M., F149, OREGON CONVENTION CENTER

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

Moderator: Jenn Rossmann, Lafayette College

T535 - Four Pillars of Manufacturing Knowledge

3:15 P.M. - 4:45 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Richard Chiou, Drexel University; Richard Zhao, University of Calgary

Advanced Four Pillars of Manufacturing Knowledge

Dr. John L. Irwin, Michigan Technological University

Ms. Suzy Gorospes Marzano, SME

Dr. Ismail Fidan, Tennessee Technological University

Dr. Neil Littell, Ohio University

Productivity Improvement Through Assembly Line Balancing

Prof. Somnath Chattopadhyay, Cleveland State University

The Integration of Sustainability and Automation to Enhance Manufacturing in Industry 4.0

Dr. Hossain Ahmed, Austin Peay State University

Mahesh Kumar Pallikonda, Austin Peay State University

Dr. Md. Ali Haider, Austin Peay State University

Prof. Ravi C. Manimaran, Austin Peay State University

Using Simulation Software Rockwell Arena for Effective Teaching of Value Stream Mapping in Undergraduate Lean Six Sigma Class

Dr. Swapnil Patole, Mississippi State University

T536 - DISTINGUISHED LECTURE: Materials Education for Sustainability: A Design-led Approach

3:15 P.M. - 4:45 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Materials Division (MATS)

Moderators: Joel Galos, California Polytechnic State University, San Luis Obispo; Kaitlin Tyler, ANSYS, Inc.

Speaker: Dr. Bosco Yu, University of Victoria

T538A - MECH - Technical Session 9: Advanced Mechanical Engineering Topics

3:15 P.M. - 4:45 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Joseph Rencis, University of Texas at Dallas

This session delves into advanced topics in mechanical engineering education. It includes simulation and control of space mechanisms, thermodynamics syllabi analysis for retention, specifications grading in dynamics, educational simulations for atomic force microscopy, and evaluating self-efficacy in an AI-, modeling-, and simulations- certificate program.

Simulation and Control of Space Mechanisms: An Undergraduate Controls Course for Mechanical Engineering Students

Dr. Brian James Slaboch, Milwaukee School of Engineering

Dr. Luis Alberto Rodriguez, Milwaukee School of Engineering

Study of Thermodynamics Syllabi as A Step Toward Understanding Second- and Third-Year Retention

Dr. Christine E. Hailey, Texas State University

Specifications Grading in an Undergraduate Engineering Dynamics Course

Dr. David A. Copp, University of California, Irvine

An Educational Simulation for Understanding Atomic Force Microscopy Image Artifacts

Dr. Rachel Mok, Massachusetts Institute of Technology

Cong Li, Massachusetts Institute of Technology

Dr. Benita Comeau, Massachusetts Institute of Technology

Ms. Emily Welsh, Massachusetts Institute of Technology

Prof. Nicholas Xuanlai Fang, University of Hong Kong

Dr. John Liu, Massachusetts Institute of Technology

Work-In-Progress: Continued Evaluation of Engineering Self-efficacy and Judgement for an Artificial Intelligence, Modeling, and Simulations (AIMS) Certificate Program

Mr. Samuel James Murphy, The University of Iowa

Martell Cartiaire Bell, The University of Iowa

Prof. Rachel Vitali, The University of Iowa

Dr. Jae-eun Russell

T538B - MECH - Technical Session 10: Special Topics and Innovative Methods in Mechanical Engineering

3:15 P.M. - 4:45 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Rasim Guldiken, University of South Florida; Samantha Hoang, Seattle University

This session highlights innovative approaches in mechanical engineering education. It includes a simulated design exercise during Design Week, entrepreneurial learning in mechanical vibrations, integrating electric vehicle technologies with AI, developing an EMG-based orthotic prototype, fostering learning innovations through collaboration, and creating a hands-on additive manufacturing course.

Design Week: A Simulated Design Exercise

Dr. Fabian Sorce, Imperial College London

Idris Kevin Mohammed

Kate Ippolito

Marc Masen

Entrepreneurial Minded Learning in a Core Junior-Level Mechanical Vibrations Course

Dr. Bo Yu, Utah Valley University

Dr. Anne-marie A. Lerner, University of Wisconsin, Platteville

Dr. Mike Zampaloni, University of Wisconsin, Platteville

Evolving the Drive: Integrating Electric Vehicle Technologies with AI in Automotive Engineering Courses

Dr. Zahra Pournorouz, Stevens Institute of Technology

Exo Arm-An EMG Based Orthotic Prototype

Mr. Matthew Paul Yoder, Wentworth Institute of Technology

Dr. Ilie Talpasanu, Wentworth Institute of Technology

Dr. Radu Ceausu, Wentworth Institute of Technology

Dr. Gloria Ma, Wentworth Institute of Technology

Yusuf Eid, Wentworth Institute of Technology

Han Thanh Hua, Wentworth Institute of Technology

Nathanael Hillyer, Wentworth Institute of Technology

Developing a Learning Innovation for an Undergraduate Mechanical Engineering Course through Faculty, Engineer, and Student Collaboration

Dr. Sean Lyle Gestson, University of Portland

Dr. Matthew Stephen Barner, University of Portland

Rhianna Fitzgerald

Jordan Farina, University of Portland

Development of Hands-on Additive Manufacturing Courses

Dr. Kazi Md Masum Billah, University of Houston, Clear Lake

T539 - Hands-On Mechanics

3:15 P.M. - 4:45 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsors: Mechanics Division (MECHS); Mechanical Engineering Division (MECH); Civil Engineering Division (CIVIL)

Moderator: Chris Venters, East Carolina University

This session features brief presentations by mechanics instructors of some of the toys and demonstrations that they use to illustrate concepts and energize their classes.

T540 - Advancing Equity in Engineering Education

3:15 P.M. - 4:45 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Benjamin Flores, University of Texas at El Paso; Dayna Martínez, Society of Hispanic Professional Engineers, Inc.

This session delves into innovative initiatives aimed at fostering inclusivity and equity in engineering education. The first presentation explores the evolution of inclusive mentoring through an evolving workshop model in engineering and science. Following this, a comprehensive review examines the barriers faced by low-income engineering students and explores the efficacy of S-STEM programs in enhancing their sense of belonging. Next, the session discusses the Equipando Padres Program Pilot, which seeks to engage Hispanic parents and caregivers in supporting first-generation-to-college engineering students. Lastly, the session investigates the potential of construction-management education programs at HBCUs to bolster the representation of African-American construction managers in the United States. Join us for an enlightening discussion on advancing diversity and inclusion in engineering education.

Inclusive Mentoring in Engineering and Science: An Evolving Workshop Model (Experience)

Dr. Benjamin C. Flores, University of Texas at El Paso

Audrey Boklage, University of Texas at Austin

Dr. Maura Borrego, University of Texas at Austin

Emily Violet Landgren, University of Texas at Austin

Dr. Karina Ivette Vielma, The University of Texas at San Antonio

Ernest Chavez, Colorado State University

Increasing Sense of Belonging for Low-Income Engineering Students: A Review of Barriers, S-STEM Programs, and Future Directions

Ms. Anya Work, Virginia Polytechnic Institute and State University

Leveraging Familia: Equipando Padres Program Pilot for Hispanic Parents and Caregivers of First-Generation-to-College Engineering Students

Dr. Dayna Lee Martínez, Society of Hispanic Professional Engineers, Inc.

Liliana González, Society of Hispanic Professional Engineers, Inc.

Dr. Kimberly D. Douglas P.E., Society of Hispanic Professional Engineers, Inc.

Andrea D. Beattie, Society of Hispanic Professional Engineers, Inc.

Ms. Esther Gonzalez

Can Construction Management Education Programs at HBCUs Increase the Number of African-American Construction Managers in the United States?

Ms. Simonne Renee Whitmore, Southern University and A&M College

T540B - Navigating Diversity and Equity in STEM Education

3:15 P.M. - 4:45 P.M., A104, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Julie Smith; Nandika D'Souza, University of North Texas

This session offers a multifaceted exploration of diversity and equity in STEM education from various perspectives. The first presentation delves into the perceptions of engineering faculty and staff regarding new diversity, equity, and inclusion (DEI) laws, along with recent affirmative action decisions. Following this, attendees will gain insights into the experiences and perceived benefits of underrepresented minority undergraduates participating in short summer research abroad programs. The session then examines the impact of organizational change on student retention and engagement, particularly focusing on undergraduate engineering and computer science students in two-year institutions. Additionally, the session reviews the evolving diversity trends observed in STEM summer camps over the past two decades. Lastly, the session discusses the implications of presidential and chancellor turnover in the United States on broadening participation in STEM and research capacity building. Join us for a comprehensive discussion on navigating diversity and equity in STEM education.

Perceptions of New DEI Laws and the Recent Affirmative Action Decision among Engineering Faculty and Staff

Dr. Julie M. Smith, CSEdResearch.org

Perspectives and Perceived Gains Among Undergraduate, Underrepresented Minorities in a Short Summer Research Abroad Program

Dessaray M. Gorbett, University of Texas at El Paso

Dr. Benjamin C. Flores, University of Texas at El Paso

Ms. Ariana (Ari) Arciero, University of Texas at El Paso

Sara E. Rodriguez, University of Texas at El Paso

Dr. Helmut Knaust, University of Texas at El Paso

Effect of Organizational Change on Student Retention and Engagement

Dr. Nandika D'souza, University of North Texas

Hector R. Siller, University of North Texas

Dr. Hyun Kyoung Kyoung Ro, University of North Texas

Debbie Huffman, North Central Texas College

Diversity Trends in STEM Summer Camps Over the Last Two Decades

Amani Qasrawi, The University of Texas at San Antonio

Dr. Tulio Sulbaran, The University of Texas at San Antonio

Dr. Sandeep Langar, The University of Texas at San Antonio

T541 - Multidisciplinary Engineering Division (MULTI) Technical Session 5

3:15 P.M. - 4:45 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Yang Shao, University of Illinois at Urbana - Champaign; Samantha Hoang, Seattle University

A Work-in-Progress Study: Exploring Performance-Based Assessment in an Interdisciplinary Projects Program

Abdulrahman Alsharif, Virginia Polytechnic Institute and State University

Dr. Lisa D. McNair, Virginia Polytechnic Institute and State University

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Dr. David Gray, Virginia Polytechnic Institute and State University

Miss Yi Cao, Virginia Polytechnic Institute and State University

Analysis of the Impact of University Academic Requirements on Engineering Students' Outcomes

Dr. Rania Al-Hammoud, University of Waterloo

Dr. Ona Egbue, University of South Carolina Upstate

Siwakorn Wisawakornwisit, University of Waterloo

Tesse Klompstra

Aotian Guan, University of Waterloo

Comparing Outcomes Between Two Engineering Majors in a Deterministic Operations Research Course

Hsin-Li Chan, Penn State University

Dr. Yuan-Han Huang, Penn State University

Barukyah Shaparenko, Penn State University

Engineering Student Success: Implications of combined Scholarship, Academic, and Community Support Interventions

Seyedehsareh Hashemikamangar, The University of Memphis

Dr. Stephanie S. Ivey, The University of Memphis

Craig O. Stewart, The University of Memphis

Dr. Aaron Robinson, The University of Memphis

Work-in-Progress: Seizing Failure as an Opportunity to Learn: Undergraduate Engineering Students' Conceptions of Failure and Iteration

Dr. Sara A. Atwood, Elizabethtown College

Dr. Kelsey Scalaro, University of Nevada, Reno

Rebecca Holcombe

T542A - NEE Technical Session 3 - Courses: Development, Logistics, and Impact

3:15 P.M. - 4:45 P.M., E144, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: James Giancaspro, University of Miami

Translation of Green Infrastructure for Stormwater Mitigation and Pollution Control Research into Engineering Education

Meghana Parameswarappa Jayalakshmamma, New Jersey Institute of Technology

Dr. Michel C. Boufadel P.E., New Jersey Institute of Technology

Dr. Ashish D. Borgaonkar, New Jersey Institute of Technology

Case Study: A Comparative Analysis of Teaching Modalities in Thermodynamics

Dr. Jennifer Mott, California Polytechnic State University, San Luis Obispo

The Impact of In-person Instruction on Student Performance Using a STEM Technical Design Course

Dr. Sarah Rajkumari Jayasekaran, University of Florida

Impact of Students' Backgrounds on Online Learning Behavior: Generation Z Technology Acceptance of E-Learning Technology during COVID-19

Dr. Sanaz Motamedi, University of Florida

Viktoria Medvedeva Marcus, University of Florida

T544 - Ocean and Marine Division (OMED) Business Meeting

3:15 P.M. - 4:45 P.M., COLUMBIA 4 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Ocean and Marine Division (OMED)

Moderators: Maija Benitz, Roger Williams University; Robert Kidd, State University of New York Maritime College

Business Meeting for OMED

T547 - Student Division Technical Session 6: Belonging

3:15 P.M. - 4:45 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Margaret Webb, Virginia Tech Department of Engineering Education; Michaela Harper, Utah State University

What No One Tells the (Future) Assistant Professor: Uncovering Hidden Curriculum for Faculty

Dr. Rachel Louis Kajfez, The Ohio State University

Dr. Julie P. Martin, University of Georgia

Investigating How Engineering Faculty's Perceptions of Students Are Influenced by Experience Level

Emily Nicole Fitzpatrick, University of Nebraska, Lincoln

Chloe Faith Mann, University of Nebraska, Lincoln

Dr. Jessica Deters, University of Nebraska, Lincoln

WIP: Examining the Multifaceted Significance of Scholarship Programs in STEM

Skylar Hubbarth, Clemson University

Anna Grace Hunter

Shannon Conner, Clemson University

Dr. D. Matthew Boyer, Clemson University

Exploring the Critical Incidents and Sociocultural Dynamics that Initiate and Anchor Engineering Identity Formation

Kaitlyn Pope, Utah State University

Dr. Cassandra McCall, Utah State University

Team Dynamics in Student Engineering Design Teams: Correlations to Women Retention and Careers in Mechanical and Motorsport Professions

Brigid McCormack, University at Buffalo, The State University

of New York

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

T548 - Systems Engineering Topics

3:15 P.M. - 4:45 P.M., COLUMBIA 2 , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Systems Engineering Division (SYS)

Moderator: Rafic Bachmak, Franklin University

Various systems engineering topics, including analysis, modeling, design, and integration.

Essentials of the Nurse + Engineer: Integrating Systems Engineering Modeling

Dr. Daniel B. Oerther P.E., Missouri University of Science and Technology

Sarah Oerther

Control System Design for a Small-Scale Radio Telescope: A Senior Design Project

Zachary Martin, Penn State University

Aaron Olsen, Penn State University

Kiana Karami, Penn State University

Developing Computational Intelligence Curriculum Materials to Advance Student Learning for Robot Control and Optimization

Dr. Tingjun Lei, Mississippi State University

Timothy Sellers, Mississippi State University

Prof. Chaomin Luo, Mississippi State University

Prof. Zhuming Bi, Purdue University

Prof. Gene Eu Jan, Tainan National University of the Arts

Exploring the Impact of Study Sheets on Students' Performance in an Engineered Systems in Society Course

Mr. Isaac Damilare Dunmoye, University of Georgia

Vincent Oluwaseto Fakiyesi, University of Georgia

Similoluwa Temitope Ige, University of Georgia

Dr. Wayne Johnson, University of Georgia

Leveraging Active Learning Techniques to Teach Model-Based Systems Engineering

Dr. Joe Gregory, The University of Arizona

Rick Steiner, The University of Arizona

.

T551 - Women in Engineering Division (WIED) Technical Session 4 - Hands-on Learning

3:15 P.M. - 4:45 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Katherine Ehlert, Miami University

The papers in this session address hands-on learning through art and play.

Breaking Barriers: Empowering Girls in STEM with Hands-On Learning

Dr. Federica Aveta, Wentworth Institute of Technology

Dr. Marisha Rawlins, Wentworth Institute of Technology

Dr. Afsaneh Ghanavati, Wentworth Institute of Technology

Dr. Gloria Ma, Wentworth Institute of Technology

Dr. Pilin Junsangsri

Pilin Junsangsri, Wentworth Institute of Technology

Dr. Anuja Kamat, Wentworth Institute of Technology

Promoting Diversity in Welding Engineering Technology through the Medium of Art

Dr. Mary Foss, Weber State University

Mr. Mark Baugh, Weber State University

Dr. Yucheng Liu P.E., South Dakota State University

Building Shared Visions on Gender in an Engineering School with Lego® Serious Play®: a Pilot Study

Prof. Claudia Paz Gwynn, Universidad Andres Bello, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Chile

Carolina Elizabeth Jerez, Universidad de Chile

Controlled Trial Illustrating Benefits of Increased Sketching and Spatial Visualization Training for Female Engineering Students

Prof. Nathan Delson, University of California, San Diego

Dr. Huihui Qi, University of California, San Diego

T552 - Community Engagement Division (COMMENG) Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 3, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Community Engagement Division (COMMENG)

T555 - LEAD Division Business Meeting

3:15 P.M. - 4:45 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Engineering Leadership Development Division (LEAD)

T556 - Military and Veterans Division Business Meeting

3:15 P.M. - 4:45 P.M., WILLAMETTE 6, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Military and Veterans Division (MVD)

Moderator: Alyson Eggleston, Pennsylvania State University

T557 - Faculty Development Division (FDD) Technical Session 9

3:15 P.M. - 4:45 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Juan David Ortega Álvarez, Virginia Polytechnic Institute and State University; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 9

Exploring Motivational Tools for Homework in a Senior-Level Engineering Course

Dr. Richard T. Buckley P.E., United States Air Force Academy

Improving Student Outcomes in Math through Online Faculty Professional Development

Dr. Chris S. Hulleman, University of Virginia

Dr. Dustin B. Thoman, San Diego State University

Yoi Tibbetts, University of Virginia

Lessons Learned: Exploring Effective Student-centered Instructional Practices in Middle and Upper-level Engineering

Shabnam Wahed, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute and State University

Dr. Jennifer "Jenni" M. Case, Virginia Polytechnic Institute and State University

Dr. David B. Knight, Virginia Polytechnic Institute and State University

Dr. Homero Murzi, Virginia Polytechnic Institute and State University

Translational Engineering Education: A New Paradigm for Preparing Next-Generation Engineers for the 21st Century Workforce

Dr. Phuong Truong, University of California, San Diego

Prof. Truong Nguyen, University of California, San Diego

Prof. James Friend, University of California, San Diego

Dr. Alex M. Phan, University of California, San Diego

T559 - Inclusive Mentoring Practices for Advising Diverse Graduate Students

3:15 P.M. - 4:45 P.M., B118, OREGON CONVENTION CENTER

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

Moderators: Brandon Bakka, University of Texas at Austin; Emily Landgren, University of Texas at Austin; Maura Borrego, University of Texas at Austin; Audrey Boklage, University of Texas at Austin; Benjamin Flores, University of Texas at El Paso

Speakers: Brandon Bakka, University of Texas at Austin; Emily Violet Landgren, University of Texas at Austin

While there are many different interpretations of inclusive mentoring, our team has developed a specific definition based on prior literature and empirical research. We define inclusive mentoring as “a multifaceted, reciprocal and conscious relationship in which a mentor engages a protégé or group of protégés from diverse backgrounds to advance their goals and to learn from their professional development experiences. In addition to guiding the discovery of intellectual passions, providing advice and access to resources, and advocating for their protégés, inclusive mentors readily acknowledge their protégés identity, validate their backgrounds and accomplishments, and provide supportive environments to prevent isolation by promoting cultural awareness and sensitivity. Mentors and protégés work together toward a better future by engaging in a virtuous cycle of learning and growth of the individual as a whole, through effective practices.” (Boklage et al., 2023) This definition will be the framework of our discussion throughout the panel.

Graduate students are a highly diverse and complex

group of students, with vastly different lived experiences, challenges, and pathways to and through graduate school. Furthermore, many institutional resources, such as disability accommodations, are insufficient for the challenges of graduate school. Therefore, graduate students must rely heavily on their primary faculty mentors for support, and these mentors must be equipped to handle the differing needs of a diverse population. This panel is important for the EQUITY division because it focuses on understanding the unique challenges graduate students face. It will further the mission of theDivision, by promoting mentoring that honors each student's lived experiences. This panel is largely aimed toward an audience of faculty members that work closely with graduate students in any capacity. Our goal for this session is to provide attendees with a better understanding of inclusive mentoring, the unique barriers that graduate school can present, and to be more cognizant of what they can do to support the graduate students they mentor.

Learning Outcomes

1. Define inclusive mentoring and review inclusive mentorship techniques.

2. Discuss the unique challenges students (particularly those with a non-traditional pathway) can face in graduate school.

3. Identify ways to incorporate inclusive mentoring practices in current mentor/mentee relationships.

T559B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 6

3:15 P.M. - 4:45 P.M., A108, OREGON CONVENTION CENTER

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

Exploring Early-Career Professionals' Conceptions of 'Stretch Assignments': A Qualitative Study of Recent Graduates from Engineering and Non-Engineering Fields

Dr. Shannon Katherine Gilmartin, Stanford University

Sara Jordan-Bloch, Stanford University

Factors Driving and Impeding STEM Student Motivations and Success

Ms. Claudia Calle Müller, Florida International University

Mais Kayyali, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

How to Develop a Culture of Coding for the Future: A Case Study of the megaGEMS Coding Academy

George Zaccheus Sikazwe, University of the Incarnate Word

Stephanie Weiss-Lopez

Dr. Diane L Peters P.E., Kettering University

Dr. Michael Frye, University of the Incarnate Word

Implications of Financial Support for the Academic Efficacy and Mental Health and Wellbeing of Engineering Undergraduates

Dr. Muhammad Asghar, University of Cincinnati

Dr. Angela Minichiello, Utah State University

Dr. Oenardi Lawanto, Utah State University

Daniel Kane, Utah State University

Inclusive Teaching Practices in Engineering: A Systematic Review of Articles from 2018 to 2023

Rajita Singh, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

T572 - CMC Industry Day Panel Sessions: AI in Education - The Good, the Bad, and the Ugly

3:15 P.M. - 4:45 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Patrick Kane, Cypress Semiconductor Corp.

Speakers: Dr. Elvira Osuna-Highley, MathWorks; Yuchung Wang; Dr. Patrick R. Kane, Cypress Semiconductor Corp.

This panel aims to explore the multifaceted impact of artificial intelligence (AI) on education, highlighting the benefits, challenges, and ethical concerns. As AI technologies increasingly permeate educational settings, the potential for personalized learning, improved access to resources, and enhanced teaching methodologies emerge as the "good" side of the equation. However, alongside these advantages, concerns regarding data privacy, algorithmic bias, and the potential for widening educational inequalities constitute the "bad" and "ugly" aspects. By bringing together experts from industry and academia, this panel seeks to delve into these complexities, fostering a nuanced understanding of AI's role in shaping the future of education and the steps needed to navigate its impact responsibly.

T581 - Incorporating Disability Perspectives into Biomedical Engineering Education

3:15 P.M. - 4:45 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Pun To Douglas Yung

Inclusion and accessibility are essential in biomedical engineering education, yet current curricula often overlook disability perspectives. This oversight limits innovation and misses out on addressing unique challenges faced by individuals with disabilities. To foster a more equitable educational landscape, it's crucial to integrate disability-focused content. This includes broadening the curriculum to incorporate universal design principles, assistive technologies, and inclusive research practices. Collaborative learning, where biomedical students engage with disability studies peers, can also drive novel solutions. Embracing this inclusive approach not only enriches academic discourse but prepares students for real-world challenges, ensuring technology advancements cater to all, enhancing the quality of life for those with disabilities.

T581B - Part II: A Community Conversation on Racial Equity

3:15 P.M. - 4:45 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Stephen Secules, Florida International University; Alex Mejia; Whitney Gaskins, University of Cincinnati; Dr. Kristen Moore, University at Buffalo, The State University of New York; Dr. Atota Bedane Halkiyo, Arizona State University

Racial equity is a topic that many people care about, yet taking concerted and sustained action about it remains a challenge. We are calling together a cross-section of those who are working on and interested in the topic of racial equity to: 1) draw on the broader community's expertise and integrate it into our ongoing racial equity research projects, 2) share the project-knowledge generation with the broader community, and 3) spur further concerted efforts in the area of racial equity.

The event will be led by PIs of NSF-funded projects focused on racial equity. We will invite a representative cross-section of stakeholders to participate, including scholars, advocates, and program administrators. We will host this interactive event with two main parts. First, we will have participants collectively expand the funded NSF projects' knowledge base on racial equity. Second, we will conduct a mixer focused on building capacity for further work on racial equity. The learning objectives for the session are:

- The participants will gain knowledge about ongoing efforts regarding racial equity in engineering education, including initial project insights and framings.

- The participants will provide crucial input into these ongoing project efforts.

- The participants will network with others engaging with, invested in, and/or focusing on racial equity in engineering education.

The learning outcomes for the workshop are:

- Expanded capacity of the ASEE community to pursue and collaborate on racial-equity related efforts and

- Expanded understanding of issues related to racial equity in engineering education

Free ticketed event

T582 - Undergraduate Experience Committee Business Meeting

3:15 P.M. - 4:45 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Cynthia Paschal, Vanderbilt University; John-David Yoder, Ohio Northern University

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. Proposed changes to the bylaws will be discussed.

T594 - SPONSOR TECH SESSION: How to Teach Edge AI - Reflections from Arm Education and Kingfisher Lab

3:15 P.M. - 4:45 P.M., B111 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Mobile and edge devices will soon be able to deploy large language models (LLMs) in artificial intelligence (AI) applications that will have a transformational impact on society. How can academia prepare the next generation of engineers to leverage the opportunities and address the challenges presented by Edge AI? In this Arm Education sponsored session, Catherine Breslin, an AI consultant from Cambridge, UK, and co-founder of Kingfisher Labs, will discuss key considerations for teaching AI in higher education, including:

- Motivations for running Edge AI;
- Best practices for teaching Edge AI;
- Key technologies;
- Addressing the societal impact of AI.

During the session, we will also be announcing details of the upcoming "Teaching AI at the Edge" Global Design Contest and inviting academics worldwide to create and submit innovative examples of how to teach the subject.

Submissions will be showcased on the EduLabs community portal created by the University of Southampton, with incentives to encourage global participation. Join us at 3:15 p.m. on June 25 to learn more!

About Catherine Breslin: As an AI consultant and founder of Kingfisher Labs, Catherine works with leaders in companies bringing cutting-edge technology to market. Catherine has worked across academia, product development and consulting. She has built technology, managed people and projects that span large distributed teams, and can translate complex technical concepts for business audiences, or vice versa. With more than two decades experience as an AI scientist building voice and language AI models and years of technical leadership, Catherine brings expert knowledge and best practice to AI companies. Her previous roles include AI scientist and manager at Cambridge University, Toshiba Research, Amazon Alexa, and Cobalt Speech.

About Arm Education: The mission of the Education team at Arm is to help close education and skills gaps in Computer Engineering and STEM for the benefit of society. By drawing on Arm's technological expertise, innovation and partner ecosystem, we provide content to help both teachers and learners achieve their objectives. In addition to the teaching and learning resources below, we enable access to IP, tools, and other support to universities for research enablement and work closely with academic and industry partners on research collaborations.

T669 - FOCUS ON EXHIBITS: Networking Break

5:00 P.M. - 6:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Take the opportunity at the end of the day to chat with exhibitors and fellow attendees at our Tuesday evening networking break. You'll be sure to come away with new insights and maybe even some future collaborations.

T704 - Biomedical Engineering Division (BED) Social and Awards Banquet

7:00 P.M. - 9:00 P.M., OFFSITE, JAKE'S CATERING AT THE SENTINEL HOTEL,

The Library Room, 614 SW 11th Ave, Portland, OR 97205, Directions from Oregon Convention Center by public transit: Walk to the Convention Center MAX Station, Take the MAX Blue Line towards Hillsboro or the MAX Red Line towards City Center/Beaverton, Get off at the Galleria/SW 10th Ave Westbound Station. The Sentinel Hotel is 1 block away from the station.

Sponsor: Biomedical Engineering Division (BED)

Moderators: Cameron Kim, Duke University; Yanfen Li, University of Massachusetts Lowell

Social/networking event and awards banquet for the Biomedical Engineering Division (BED). Ticketed. Dinner is included in the ticket cost. New and returning BED members are encouraged to join!

Ticketed event: $75.00 advanced registration and $85.00 on site registration

T705 - Chemical Engineering Division (ChED) Banquet

6:00 P.M. - 9:00 P.M., OFFSITE, EASTON BROAD, 237 NE BROADWAY STREET SUITE 300, PORTLAND, OR 97232

Sponsor: Chemical Engineering Division (ChED)

We are excited to bring everyone together for networking and celebration of the award winners across our community.

The banquet will be held at Easton Broad, which is about a 10-minute walk from the conference center. We will have a food truck for dinner, as well as Voodoo Donuts for dessert. There will be a cash bar onsite (they also accept cards).

Ticketed event: ChED Banquet - $55.00 advanced registration and $65.00 on site registration

T709 - Construction and Architectural Divisions Social

6:00 P.M. - 9:00 P.M., OFFSITE, SPIRIT OF 77, 500 NE MARTIN LUTHER KING JR BLVD, PORTLAND, OR 97232

Sponsors: Construction Engineering Division (CONST); Architectural Engineering Division (ARCHE)

Spend the evening with construction and architectural faculty!

We will meet in the Spirit of 77. You will order your own food and beverage at the bar and join us at our table(s). We will have signs on the table{s) to help you find the group.

Free ticketed event

T706 - Civil Engineering Division Banquet

6:30 P.M. - 9:00 P.M., OFFSITE, COOPERS HALL, 404 SE 6TH, PORTLAND, OR 97214

Sponsor: Civil Engineering Division (CIVIL)

Coopers Hall

404 SE 6th

Portland, OR 97214.

Ticketed event: $75.00 advanced registration and $85.00 on site registration

T721 - Engineering Libraries Division Annual Banquet

6:00 P.M. - 9:00 P.M., OFFSITE, OFF-SITE BY INVITATION ONLY, TBD

Sponsor: Engineering Libraries Division (ELD)

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

T713 - Food Cart Social with DEED

7:00 P.M. - 9:00 P.M., OFFSITE, CARTSIDE FOOD CARTS, 1825 N WILLIAMSVILLE AVE, PORTLAND OR

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Corey Schimpf, University at Buffalo, The State University of New York

Do you want to know more about the Design in Engineering Education Division? Want to meet some of its members and officers over a causal chat? DEED will be hosting a social get-together at the Cartside Food Carts at 1825 N Williamsville Ave, Portland OR from 5 p.m. to 6:30 p.m. on Tuesday June 25. For more about the food cart pods see here: https://www.travelportland.com/culture/food-cart-pods.

This particular food cart pod offers a wide range of global cuisines so there should be something for everyone! We'll meet near the entrance at 5, select which food carts we want to go to and gather to chat about design, DEED, or anything else. Hope to see you there! Please email any questions to Corey Schimpf schimpf2@buffalo.edu.

T716 - ECCNED Social Function

7:00 P.M. - 9:00 P.M., OFFSITE, METROPOLITAN TAVERN , 1021 NE GRAND AVE #600, PORTLAND, OR 97232

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Dinner at the Metropolitan Tavern located at 1021 NE Grand Ave #600, Portland, OR 97232

Free ticketed event

T722 - Joint Division Social Event (EMD, EED, IDN, SYS)

7:00 P.M. - 9:00 P.M., OFFSITE, METROPOLITAN TAVERN, 1021 NE GRAND AVENUE, #600, PORTLAND, OR 97232

Sponsors: Engineering Management Division (EMD); Engineering Economy Division (EED); Industrial Engineering Division (IND); Systems Engineering Division (SYS)

Moderator: Mckenzie Landrum, University of Florida

The Joint Social will take place at the Metropolitan Tavern (Northside area): https://mettavern.com. It will be buffet style and a cash bar.

Ticketed event: $85.00 advanced registration and $95.00 on site registration

T724 - ENT Division Social

7:00 P.M. - 9:00 P.M., OREGON BALLROOM 204, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

The Entrepreneurship and Innovation Division (ENT) invites you to join us for an evening of catching up and forging new friendships.

T726 - Cancelled: ELOS 2024 Social Event

7:00 P.M. - 9:00 P.M.

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

This event has been cancelled.

T734 - LEES & Friends Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, PRODUCE ROW , 204 SE OAK ST. PORTLAND, OR 97214

Sponsors: Liberal Education/Engineering & Society Division (LEES); Community Engagement Division (COMMENG); Engineering Ethics Division (ETHICS); Equity, Culture & Social Justice in Education Division (EQUITY)

Enjoy a cross-disciplinary social event as an off-site celebration. Please RSVP here: https://docs.google.com/forms/d/e/1FAIpQLSe7odNj9e03qJBfCYkPoeyxvx3n8Qr4AagPqY-DqxsYlyXGkw/viewform

Also sponsored by: International Network for Engineering Studies (INES)

T735 - Manufacturing Division Social

7:00 P.M. - 9:00 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Manufacturing Division (MFG)

Moderators: Faisal Aqlan, University of Louisville; Md Fashiar Rahman, University of Texas at El Paso

The Manufacturing Division Social fosters togetherness among division members and their friends and family. This event provides a unique opportunity for individuals to come together in a relaxed and social setting, promoting the exchange of experiences and thoughts related to the division. While having an enjoyable dinner, attendees can engage in meaningful conversations, strengthen professional connections, and build a sense of community within the division. The highlight of the evening is the announcement of the awardee, recognizing outstanding contributions and achievements within the manufacturing division.

Ticketed event: $85.00 advanced registration and $95.00 on site registration

T739 - Mechanics Division Awards Banquet

7:00 P.M. - 9:00 P.M., OFFSITE, THE GEMINI, 456 N STATE ST, LAKE OSWEGO, OR 97034

Sponsor: Mechanics Division (MECHS)

Moderator: Daniel Baker, Colorado State University

Please join fellow mechanics division colleagues for an evening of socializing and celebration. We will present our division award winners for best paper, best presentation, and others. New members are welcome!

Your ticket includes a delicious dinner and private shuttle transportation to and from The Gemini, which is just nine

miles south of the Convention Center in beautiful Lake Oswego, OR. Drinks will be available for purchase. We also have an opportunity to stagger the return shuttles if some would like to stay for live music after 9 pm. Reach out to Dan Baker at dan.baker@colostate.edu with any questions.

Ticketed event: $75.00 advanced registration and $80.00 on site registration

T740 - MIND/PCEE/WIED Social Event

7:00 P.M. - 9:00 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsors: Minorities in Engineering Division(MIND); Women in Engineering Division (WIED); Pre-College Engineering Education Division (PCEE)

Moderators: Curtis Taylor, University of Florida; Ibrahim H. Yeter, Nanyang Technological University; Suzanne Zurn-Birkhimer, Purdue University at West Lafayette (COE)

All members are invited to attend! Enjoy a social gathering and networking opportunity for members of the WIED/MIND/PCEE divisions. We will have light refreshments and activities to promote connection among attendees.

For those interested in: Academia-Industry Connections, Advocacy and Policy, Broadening Participation in Engineering and Engineering Technology, New Members, and Pre-College

T742 - New Engineering Educators Division (NEE) Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, BRIX - DOWNTOWN PORTLAND, 1338 NW HOYT ST. PORTLAND, OR 97209 (503) 943-5995

Sponsor: New Engineering Educators Division (NEE)

Come join the members of the New Engineering Educators division as we unwind and formally recognize this year's conference paper awardees. Food and drinks will be available for purchase to suit a broad palate of tastes. Prospective members are especially encouraged to attend.

Address:

Brix - Downtown Portland

1338 NW Hoyt St.

Portland, OR 97209

(503) 943-5995

Directions via light rail:

1. At the Convention Center MAX Station, board the MAX Green Line to City Center/PSU [6-10 min].

2. Exit at the Union Station/NW 5th & Glisan MAX Station

3. Walk west on NW Glisan St toward NW 6th Ave [9 min]

4. Turn right onto NW 12th Ave; walk 1 block [1 min]

5. Turn left onto NW Hoyt St; walk to 1338 NW Hoyt St [1 min]

Free ticketed event

T747 - Student Division Social: Strengthening the Student Community

7:00 P.M. - 9:00 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Jahnavi Dirisina, University of Oklahoma; Nivedita Kumar, Florida International University; Daniel Adeniranye, Florida International University

This event is a social gathering primarily for members of the student division. It provides an opportunity for members to strengthen their connections in person. Additionally, we will recognize papers that have been selected for awards. The event will also serve as a platform to disseminate important information relevant to the division.

T750 - Two-Year College Division

7:00 P.M. - 9:00 P.M., OFFSITE, HUBERS CAFE, 411 SOUTHWEST 3RD AVENUE, PORTLAND, OR

Sponsor: Two-Year College Division (TYCD)

Moderator: Philip Regalbuto, Trident Technical College

Ask for the Regalbuto Party or the Two-Year College Division Social.

Come join your fellow Two-Year College division members for fellowship and networking,

T755 - LEAD Division Social

7:00 P.M. - 9:00 P.M., OFFSITE, MCMENAMINS BROADWAY PUB, 1504 NE BROADWAY, PORTLAND, OR 97232

Sponsor: Engineering Leadership Development Division (LEAD)

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

T756 - MVD Dinner

7:00 P.M. - 9:00 P.M., OFFSITE, FOGO DE CHAO, 930 SW 6TH AVE. PORTLAND, OR 97204

Sponsor: Military and Veterans Division (MVD)

Moderator: Robert Rabb, Pennsylvania State University

MVD Dinner for all members and interested attendees. Attendees will pay for dinner on site.

Free ticketed event

T772 - CMC Business Meeting

6:30 P.M. - 7:30 P.M., COLUMBIA 4, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Corporate Member Council (CMC)

T773 - Zone 1 Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, EASTBURN, 1800 EAST BURNSIDE ST. PORTLAND, OR 97214 - 503-236-2876

Sponsor: Council of Sections (COS)

Moderators: Bala Maheswaran, Northeastern University; Ilya Grinberg, SUNY Buffalo State University

An opportunity to gather, dine, and socialize with fellow Zone 1 members awaits! Join us for a delightful evening at a nearby restaurant for dinner and enjoyable company. We also extend a warm welcome to any ASEE members interested in attending this event.

T779 - Order of the Tattered Purple Badge

7:00 P.M. - 9:00 P.M., OFFSITE, METROPOLITAN TAVERN, 1021 NE GRAND AVE STE 600, PORTLAND, OR 97232

Sponsor: Order of Tattered Purple Badges

ASEE Past President's Dinner hosted by immediate past-president Jenna Carpenter. Attendees will pay for their own meals at the restaurant.

Free ticketed event

W192 - Prayer Breakfast

7:00 A.M. - 8:00 A.M., COLUMBIA 5, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Organizations Outside ASEE

Moderators: Lisa Bullard, North Carolina State University at Raleigh; Herbert Hess, University of Idaho; Bernard Van Wie, Washington State University

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 challenges 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., OREGON BALLROOM FOYER/PLAZA, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W169B - Complimentary Childcare - Limited Availability - Advanced Registration Required

7:00 A.M. - 5:30 P.M., HOLLADAY SUITE - CHILDCARE ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

https://form.jotform.com/KiddieCorp/aseekids

We are delighted to announce that KiddieCorp will be hosting the children's program during the 131st Annual Conference and Exposition. With thirty-eight years of experience, KiddieCorp has been a trusted provider of high-quality children's programs and youth services for conventions, trade shows, and special events.

KiddieCorp's longstanding partnership with the American Academy of Pediatrics has played a key role in establishing us as a premier provider of children's program services. Our commitment to caring for your children is our top priority, ensuring they not only have fun but also receive excellent care.

CHILDREN'S PROGRAM DETAILS

Date and Hours:

Sunday, June 23 - 8:00 a.m. to 5:00 p.m.

Monday, June 24 - 8:00 a.m. to 5:00 p.m.

Tuesday, June 25 - 8:00 a.m. to 5:00 p.m.

Wednesday, June 26 - 7:00 a.m. to 5:30 p.m.

Ages:

6 months through 15 years old

Ratios:

1:2 for children ages 6 months through 11 months old

1:3 for children ages 1 through 2 years old

1:5 for children ages 3 through 5 years old

1:7 for children ages 6 through 12 years old

1:10 for children ages 13 through 15 years old

Registration:

Child care hours are provided in 2-hour blocks (with the exception of the last hour). Please book only the block(s) you intend to utilize. Child care availability is limited and operates on a first-come, first-served basis. A waitlist will be initiated once capacity is reached.

Please note that this program is complimentary for attendees of the ASEE Annual Conference only.

Please note: To prevent overbooking, a credit card will be required to confirm your reservation. This credit card information will be kept on file and will only be charged if you fail to attend your reserved days/hours or if you cancel your entire reservation after June 10, 2024.

You have until June 10th to make changes to your reservation without incurring a fee. After this date, a $50.00 per day no-show/cancellation fee will apply.

Advance registration deadline: June 10, 2024

We encourage early registration as availability is limited and operates on a first-come, first-served basis. To secure advance reservations, both the registration form and credit card info must be received by KiddieCorp. On-site registration will be limited to available space.

W169C - ASEE Registration Open

8:00 A.M. - 4:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W169D - ASEE Staff Office - Wednesday

6:00 A.M. - 5:30 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W169E - Mothers Room

8:00 A.M. - 4:00 P.M., A102 - MOTHERS ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W169F - Quiet Room

8:00 A.M. - 5:00 P.M., A101 - QUIET ROOM, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W104B - Biomedical Engineering Division (BED) Business Meeting

8:00 A.M. - 9:30 A.M., B114, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

All are welcome! Come hear from the BED Division Chair, Program Chair, and Program-Chair elect. Participate in the election of the next program chair. Learn about other ways to get involved in the division.

W105 - Perspectives in Chemical Engineering Education

8:00 A.M. - 9:30 A.M., G132, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Elizabeth Melvin, Clemson University; Clint Guymon, Brigham Young University

How We Teach: Chemical Engineering Electives

Dr. Laura P. Ford, The University of Tulsa

Dr. Janie Brennan, Washington University in St. Louis

Dr. Heather Chenette, Rose-Hulman Institute of Technology

Dr. Jennifer L. Cole, Northwestern University

Dr. Kevin D. Dahm, Rowan University

Dr. David L. Silverstein P.E., University of Kentucky

Dr. Stephen Ward Thiel P.E., University of Cincinnati

Curriculum and Teaching Load in Top-Ranked U.S. Chemical Engineering Departments

Zachary Rasmussen, University of Utah

Prof. Anthony Butterfield, University of Utah

Analysis of Chemical Engineering Curricula Using Graph Theory

Blake Lopez, University of Wisconsin, Madison

Baseline Data on CHE Teaching Focused Faculty in the U.S.

Dr. Stephanie Butler Velegol, Penn State University

Dr. Katie Cadwell, Syracuse University

Dr. Taryn Melkus Bayles, University of Pittsburgh

Dr. Lisa G. Bullard P.E., North Carolina State University

Dr. Mechteld Veltman Hillsley, Penn State University

Essentials of the Nurse + Engineer: Chemical Engineers and Healthcare Devices

Dr. Daniel B. Oerther P.E., Missouri University of Science and Technology

Sarah Oerther

W106B - Civil Engineering Division (CIVIL) Technical Session - Effective Teaching 3

8:00 A.M. - 9:30 A.M., D137, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Rhonda Young, Gonzaga University; Sean St. Clair, Oregon Institute of Technology

Case Study: Civil Engineering Student Mental Health and Watching Football?

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Creating a CIT-E Framework for Addressing Infrastructure Inequities through the Use of Case Studies

Dr. Nicholas Tymvios, Bucknell University

Dr. Claudia Mara Dias Wilson, New Mexico Institute of Mining and Technology

Dr. Corrie Walton-Macaulay, Saint Martin's University

Dr. Moses Tefe, Norwich University

Dr. Scott R. Hamilton P.E., York College of Pennsylvania

Dr. Xiaomei Wang, Brigham Young University

Gloria Faraone

Thais Alves, San Diego State University

Fostering Student Ownership and Active Learning through Student-Led Group Lectures in a Civil Engineering Materials Course

Dr. Shenghua Wu, University of South Alabama

Basant Bhatt, University of South Alabama

Neurodivergent Student Characteristics and Engineering Course Outcomes

Dr. Manish Roy, University of Connecticut

Dr. Christa L. Taylor, University of Connecticut

Dr. Maria Chrysochoou, University of Connecticut

Optimizing Co-Teaching Strategies for Success in a Neuroinclusive Large Mechanics of Materials Class

Dr. Sarira Motaref, University of Connecticut

Miss Alexandra Hain, University of Connecticut

W108B - Computer Engineering Topics

8:00 A.M. - 9:30 A.M., B117, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Vinod Lohani, Virginia Polytechnic Institute and State University

The papers in this session focus on computer-engineering topics such as FPGA and assembly language.

A Hybrid Pedagogy through Topical Guide Objective to Enhance Student Learning in MIPS Instruction Set Design

Timothy Sellers, Mississippi State University

Dr. Tingjun Lei, Mississippi State University

Dr. Chaomin Luo, Mississippi State University

Gene Eu Jan

Prof. Zhuming Bi, Purdue University, Fort Wayne

Teaching Computer Architecture Using VHDL Simulation and FPGA Prototyping

Dr. Ronald J. Hayne, The Citadel

The Forgotten Horseman: Digital Implementation of Arithmetic Division and Resources to Learn and Teach Its Complexities

Dr. Peter Jamieson, Miami University

Nathaniel David Martin, Miami University

W113 - Design in Engineering Education Division (DEED) - Case Studies in Design Education

8:00 A.M. - 9:30 A.M., B116, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Senay Purzer, Purdue University at West Lafayette (COE)

Biomedical Stakeholder Café: A People-Centered Approach for the Future of Design Engineering Education

Dr. Kate Mercer, University of Waterloo

Dr. Jennifer Howcroft, University of Waterloo

WIP: Using a Human-Centered Engineering Design Framework to Develop Learning Progressions in an Aerospace Engineering Program

Ms. Taylor Tucker Parks, University of Illinois at Urbana - Champaign

Mr. Saadeddine Shehab, University of Illinois at Urbana - Champaign

Prof. Timothy Bretl

Dr. Elle Wroblewski, University of Illinois at Urbana - Champaign

Michael Lembeck, University of Illinois at Urbana - Champaign

A Case Study of Student-Community Interaction through an Education-First Assistive Device Design Class

Prof. Hannah S. Stuart, University of California, Berkeley

Wilson Oswaldo Torres, University of California, Berkeley

Andrew I. W. McPherson, University of California, Berkeley

Preparing the Future Aircraft Design Workforce: Filling Knowledge Gaps Using Engineering Design Tools

Melissa Lepe, University of California, Irvine

Prof. Natascha Trellinger Buswell, University of California, Irvine

Jacqueline L. Huynh, University of California, Irvine

W114A - ERM Director Session

8:00 A.M. - 9:30 A.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Educational Research and Methods Division (ERM)

Special session run by the ERM Directors

W115B - Curricular Innovations for Future-Ready Engineering Talents

8:00 A.M. - 9:30 A.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Tooran Emami, United States Coast Guard Academy; Rami Haddad, Georgia Southern University

This session explores cutting-edge curricular innovations designed to prepare engineering students for the demands of the future workforce.

Ten Years of Badge-Based/Mastery Learning for Computer Architecture—Lessons Learned

Dr. Peter Jamieson, Miami University

Preparing Future Semiconductor Talent in the Global Context: A Comparative Study of the Semiconductor Engineering Curriculum in the US and Taiwan

Mr. YiXiang Shawn Sun, Virginia Polytechnic Institute and State University

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

Dr. Jennifer M. Case, Virginia Polytechnic Institute and State University

Providing High-Quality Formative Feedback for Database Assignments

Huanyi Chen, University of Waterloo

Prof. Paul Ward, University of Waterloo

Developing Microelectronics and VLSI Field Education for the Potential Workforce

Dr. Jabeom Koo, The Cooper Union for the Advancement of Science and Art

Work in Progress: Reimagining the ECE Curriculum: Bridging Technical Preparation, Professional Formation, and University Mission for a Holistic Education

Dr. Shiny Abraham, Seattle University

Dr. Mehmet Vurkac, Seattle University

Dr. Agnieszka Miguel, Seattle University

Dr. Margarita D. Takach, Seattle University

Eddy Ferré, Seattle University

Shruti Singh, Seattle University

Prof. Henry Louie, Seattle University

W1195A - DSA Technical Session 6

8:00 A.M. - 9:30 A.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Rajarajan Subramanian, Pennsylvania State University, Harrisburg, The Capital College; Pritpal Singh, Villanova University

Applying Data Analytics in Engineering Education

The Value and Instructor Perceptions of Learning Analytics for Small Classes

Dr. Smitesh Bakrania, Rowan University

Using Cohort-Based Analytics to Better Understand Student Progress

Kristina A. Manasil, The University of Arizona

Prof. Gregory L. Heileman, The University of Arizona

Bhavya Sharma, The University of Arizona

Ahmad Slim, The University of Arizona

Mr. Aryan Ajay Pathare, The University of Arizona

Melika Sharifi

Husain Al Yusuf, The University of Arizona

Roxana Sharifi, The University of Arizona

Mr. Rohit Hemaraja, The University of Arizona

Melika Akbarsharifi, The University of Arizona

An Online Interdisciplinary Professional Master's Program in Translational Data Analytics

Dr. Emily Nutwell, The Ohio State University

Thomas Bihari, The Ohio State University

Thomas Metzger, The Ohio State University

Integrating Data-Driven and Career Development Theory-Driven Approaches to Study High School Student Persistence in STEM Career Aspirations

Tonghui Xu, University of Massachusetts, Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Let's Get Physical: From Data Visualization to Data Physicalization

Dr. Marjan Eggermont, University of Calgary

W120A - Engineering Ethics Division (ETHICS) Business Meeting

8:00 A.M. - 9:30 A.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Ethics Division (ETHICS)

W122 - Engineering Management Division (EMD) Technical Session 3

8:00 A.M. - 9:30 A.M., B119, OREGON CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Jessica Leeker, University of Colorado Boulder

Challenges and Opportunities Educating Future Generations

Organizational Resilience in the Context of Higher Education Institutions: A Systematic Literature Review

Diego Alejandro Polanco-Lahoz, Texas Tech University

Dr. Jennifer A. Cross, Texas Tech University

Preparing Future Generations for Executive Leadership Roles in Technical Organizations

Mr. Richard (Rick) Warren Blank, Johns Hopkins Engineering for Professionals

Mr. Stanislaw Tarchalski, The Johns Hopkins University

Harmonizing Team Dynamics and Personality Strengths in Effectively Managing a Large Educational STEM Program

Adekemisola Olufunmilayo Asahiah, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Oyinkansola Aladeokin, Morgan State University

Hannah Abedoh, Morgan State University

Dr. Olushola V. Emiola-Owolabi, Morgan State University

W126C - Joint Session: Experimentation and Laboratory-Oriented Studies Division and Chemical Division

8:00 A.M. - 9:30 A.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderators: Dominik May, University of Georgia; Sarah Wilson, University of Kentucky

This special technical session will feature papers from both divisions covering work on laboratory-based instruction in chemical engineering education.

Prioritizing Learning Outcomes for Chemical Engineering Laboratory Courses: Student Perspectives

Dr. Chris Barr, University of Michigan

Dr. Sarah A. Wilson, University of Kentucky

Dr. Janie Brennan, Washington University in St. Louis

Dr. Joanne Beckwith Maddock, Carnegie Mellon University

Prof. Tracy L. Carter, Northeastern University

Prof. Samira Azarin Azarin

Amy J. Karlsson, University of Maryland

Integrating Industrial Feedback into Role-Playing Scenarios in Laboratory Classes for Improved Technical Communication Skills Transferable to the Workplace

Dr. Jennifer R. Brown, Montana State University, Bozeman

Prof. Stephanie G. Wettstein, Montana State University, Bozeman

Engaging Undergraduate Students in Experimental Learning in Materials Science through a Hybrid Project-Based Learning

Osama Desouky, Texas A&M University at Qatar

Dr. Marwa AbdelGawad, Texas A&M University at Qatar

Bridging the Gap: At-Home Experiments Connecting Theory and Practice in Chemical Engineering Education

Dr. Gautom K. Das, University of Maryland, Baltimore County

Embedding the Entrepreneurial Mindset into Undergraduate Bioengineering Courses: Two Instructional Laboratory Case Studies

Prof. Caroline Cvetkovic, University of Illinois

Urbana-Champaign

Dr. Keilin Jahnke, University of Illinois Urbana-Champaign

Sarah Elizabeth Lindley, University of Illinois Urbana-Champaign

Bethan Owen, University of Illinois Urbana-Champaign

W127 - Special Session - Inclusive Makerspaces for First-Year Engineering: How to Build It So They Will Come (and Stay!)

8:00 A.M. - 9:30 A.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Haritha Malladi, University of Delaware; Jill Davishahl, Edmonds College; Victoria Bill, Colorado School of Mines

Join us for this special roundtable session where we delve into the vital role of maker spaces in fostering inclusive learning environments in first-year engineering. We will first discuss strategies for building maker spaces that cater to diverse student needs and interests. We will then explore approaches for integrating hands-on making experiences into the curriculum to enhance student engagement and learning outcomes. We will also consider how to effectively recruit, train, and empower near-peer mentors to staff and run maker spaces to create a supportive and collaborative-learning community. This session is not just about sharing expertise; it is about fostering dialogue and collaboration. Bring your questions, insights, and challenges, as audience participation will be at the heart of our discussion.

W127B - First-Year Programs Division Technical Session 7: Retention & Success

8:00 A.M. - 9:30 A.M., E141, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Qudsia Tahmina, The Ohio State University at Marion; Paul McMonigle, Pennsylvania State University

This is a full paper session on retention and success of first-year engineering students.

Analyzing Attrition: Predictive Model of Dropout Causes among Engineering Students

Ms. Cristian Saavedra-Acuna, Universidad Andres Bello, Concepcion, Chile

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Santiago, Chile

Ms. Danilo Alberto Gomez Correa, Universidad Andres Bello, Concepcion, Chile

Helping Undergraduates Find a Research Match Yields Stellar Retention Results

Susan Elaine Benzel, Colorado State University

Strategies for Improving Retention in a New Undergraduate Engineering Program

Dr. Jeffrey N. Phillips, Hanover College

Ms. Kathryn A. Lowe Schneider, Hanover College

Improving First-Year Engineering Student Success with Targeted Financial Assistance, Supplemental Instruction, and Cohort Team Building

Dr. Krystal Corbett Cruse, Louisiana Tech University

Carl Boyet, Louisiana Tech University

Dr. James D. Palmer, Louisiana Tech University

Understanding and Enhancing Student Engagement: Measuring Resources, Self-Assessment and Constructive Engagement In 1st-Year Engineering Courses

Navid Yaghoubisharif, Oregon State University

Dr. Shane A. Brown P.E., Oregon State University

Dr. Natasha Mallette P.E., Oregon State University

W128A - Graduate Studies Division (GSD) Technical Session 7: Graduate Student Experiences

8:00 A.M. - 9:30 A.M., C125, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Expectations Versus Reality: Understanding Women STEM Doctoral Students' Perceptions and Experiences on Doctoral Mentoring Relationships

Marah C. Lambert, University of North Carolina at Charlotte

Dr. Lisa Merriweather, University of North Carolina at Charlotte

Dr. Cathy Howell, University of North Carolina at Charlotte

Dilara Yaya Bryson, University of North Carolina at Charlotte

Dr. Edith Gnanadass, The University of Memphis

Unveiling the Crisis: Decoding the Working Conditions of Doctoral Engineering Students and the Call for Decent Work

Mr. Rafael De Leon, The Ohio State University

Dr. Ann D. Christy P.E., The Ohio State University

Rosalyn Stoa, Colorado State University

Alexa Jayne, Colorado State University

Bailey Underill, Colorado State University

Development of a Climate Survey for Engineering Doctoral Students from an Intersectional Approach: First-Round Validity Evidence

Dr. So Yoon Yoon, University of Cincinnati

Dr. Julie Aldridge, The Ohio State University

Nicole Else-Quest, University of North Carolina at Chapel Hill

Dr. Joe Roy, American Society for Engineering Education

"How You Got Me Messed Up": A Critical Analysis of Doctoral Engineering Education through the Lens of Black PhD Candidates

Mrs. Crystal Alicia Nattoo, Stanford University

Crystal E. Winston, Stanford University

Rachel A. G. Adenekan, Stanford University

W133 - Springfield's STEM Spectacle: Evaluating Engineering Excellence, D'oh!

8:00 A.M. - 9:30 A.M., C120, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Ayush Pandey

This session will explore evaluation methods to assess the impact of engineering education.

"Draw an Engineer"

Ms. Elizabeth Meintel, University of Cincinnati

Mrs. Samieh Askarian Khanamani, University of Cincinnati

Blaire MH Bartish, University of Cincinnati

Dr. Whitney Gaskins, University of Cincinnati

Kyle Turner, University of Cincinnati

Evaluation of Transfer of Learning in a Pre-College Engineering Short Course (Evaluation)

Jose Capa Salinas, Purdue University

Manuel Salmeron, Purdue University

Gaurav Chobe, Purdue University

Herta Montoya, Purdue University at West Lafayette (COE)

Dr. Morgan R. Broberg, Purdue University at West Lafayette (COE)

Impact of Engineering Course Participation on Students' Attitudinal Factors: A Replication Study (Evaluation)

Dr. Meltem Alemdar, Georgia Institute of Technology

Dr. Sunni Haag Newton, Georgia Institute of Technology

Dr. Jessica D. Gale, Georgia Institute of Technology

Mrs. Talia Capozzoli Kessler, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Evaluating the Impact of a Summer Engineering Program Using the National Student Clearinghouse (Evaluation of Program)

Dr. Edward Collins

Dr. Rochelle L. Williams, Northeastern University

W133B - Milhouse's Moment: Engineering Inclusivity, Everything's Coming Up Milhouse!

8:00 A.M. - 9:30 A.M., C122, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Monsuru Ramoni

Building inclusive communities around engineering opportunities for students

Methodologies for Evaluating the Impact of STEM Outreach on Historically Marginalized Groups in Engineering: a Systematic Literature Review (Other, Diversity)

Jessica Nhu Tran, University of British Columbia

Jessica Wolf, University of British Columbia

Shouka Farrokh, University of British Columbia

Dr. Katherine Lyon, University of British Columbia

Dr. Robyn Newell, University of British Columbia

Dr. Jenna Felice Usprech, University of British Columbia

Prof. Karen C. Cheung, University of British Columbia

Dr. Agnes Germaine d'Entremont P.Eng., University of British Columbia

Head, Heart, Hands: A Rubric for Creating Inclusive STEM Learning Environments

Dr. Meagan C. Pollock, Engineer Inclusion

Lara Hebert, University of Illinois Urbana-Champaign

Dr. Lynford Goddard, University of Illinois Urbana-Champaign

Dr. Luisa-Maria Rosu, University of Illinois Urbana-Champaign

Gender Differences with Regards to Interest in STEM (Evaluation)

Tristan Robert Straight, Wartburg College
Jennah Meyer, Wartburg College
Murad Musa Mahmoud, Wartburg College
Dr. Cristian Gerardo Allen, Wartburg College
Prof. Kurt Henry Becker, Utah State University

Engineering Bright Futures: A College Mentorship Program for Title I Public High Schools

Dr. Nina Kamath Telang, University of Texas at Austin
Anjali Maguie Raghavan, University of Texas at Austin

W134 - Advancing CESER - Cultural, Ethical, Social, and Environmental Responsibility in Engineering

8:00 A.M. - 9:30 A.M., REGENCY BALLROOM D, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: Liberal Education/Engineering & Society Division (LEES); Engineering Ethics Division (ETHICS)

Moderators: Casey Gibson, National Academy of Engineering; David Butler, National Academy of Engineering; Juan Lucena, Colorado School of Mines

The proposed special session aims to support the development of the National Academy of Engineering's (NAE) "CESER" program—Cultural, Ethical, Social, and Environmental Responsibility in Engineering. Building on the NAE's longstanding commitment to the socially responsible practice of engineering exemplified by two predecessor programs—the Center for Engineering Ethics and Society and the Online Ethics Center—CESER envisions an education and practice milieu where cultural, ethical, social, and environmental responsibility are seamlessly integrated into every facet of engineering work. The session, led by NAE staff Casey Gibson and David Butler, will begin with a brief overview of the National Academies' role in shaping sound policies, informing public opinion, and advancing the pursuit of science, engineering, and medicine; and the NAE's history in promoting the consideration of CESER issues in engineering teaching and practice. CESER advisory committee member Juan Lucena will then moderate an activity where attendees, including educators and students, will participate in constructive discussions aimed at identifying critical needs related to these issues, as well as opportunities for advancing education, scholarship, and practice. This valuable input will help establish the niche in which CESER can make a distinct impact in promoting responsible engineering, leveraging NAE's unique position to inform policy and influence nation-wide discussions. The session will prioritize the inclusion of diverse perspectives, featuring prompted small-group conversations and group-wide discussions, ensuring that the collective knowledge of ASEE members contributes to shaping the future of responsible engineering practices, and to learn from constructive critiques of past efforts in this area.

W134B - Equity and Belonging

8:00 A.M. - 9:30 A.M., D139, OREGON CONVENTION CENTER

Sponsors: Liberal Education/Engineering & Society Division (LEES); Equity, Culture & Social Justice in Education Division (EQUITY)

Moderator: Janet Tsai, University of Colorado Boulder

Liberal Education/Engineering & Society Division (LEES) Paper Session

"I'm Not Like a Human Being": How the Teaming Experiences of African American Females Reveal the Hidden Epistemologies of Engineering Culture

Kaitlyn Anne Thomas, University of Nevada, Reno
Dr. Kelly J. Cross, Georgia Institute of Technology
Ms. Isabel Anne Boyd, University of Tennessee, Knoxville
Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

Opportunities and Challenges in Teaching Equitable Design in Engineering Education: A Scoping Literature Review

Ms. Rachel Figard, Arizona State University
Abimelec Mercado Rivera, Arizona State University
Marcus Melo de Lyra, The Ohio State University

Examining Gender-Based Disparities in Students' Attitudes toward Engineering and Sociotechnical Understanding: A Structural Equation Modeling Study

Dr. Mohammad Meysami, Clarkson University
Felicity Bilow, Virginia Polytechnic Institute and State University
Jan DeWaters, Clarkson University
Lucas Adams, Clarkson University

Investigating Student Experiences of Inclusion and Exclusion to Guide Makerspace Development

Dr. Aubrey Wigner, Colorado School of Mines
Dr. Dean Nieusma, Colorado School of Mines
Catherine Chase Corry, Colorado School of Mines

Julianne Stevens, Colorado School of Mines

Expanding the Audience for the Discourse on Diversity by Recognizing the Framing Power of Implicit Messages

Dr. Kathryn A. Neeley, University of Virginia

W135 - Manufacturing Division Business Meeting

8:00 A.M. - 9:15 A.M., WILLAMETTE 10, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Manufacturing Division (MFG)

Moderator: Md Fashiar Rahman, University of Texas at El Paso

The Manufacturing Division Business Meeting is arranged for an annual gathering that brings together the division's key stakeholders, including members and the executive committee. This meeting serves as a platform to review and summarize the division's progress over the past year, sharing key achievements, challenges, and lessons learned. Another primary objective of the meeting is to elect/announce a new executive committee, ensuring a dynamic and representative leadership to guide the division effectively in the upcoming year.

W138A - MECH - Technical Session 2: Enhancing Learning through Hands-On Design

8:00 A.M. - 9:30 A.M., C121, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Maria-Isabel Carnasciali, Merrimack College; Hadas Ritz, Cornell University

This session focuses on hands-on design projects to enhance learning in engineering. Topics include building wooden bike frames, creating low-cost heat exchangers, developing pneumatic breadboards, incorporating Arduino microprocessors, and project-based learning through silicone venous valve models.

The Wooden Bike Frame Challenge: Learning Statics Through Hands-On Design

Prof. Jenni Buckley, University of Delaware

Dr. Amy Trauth, American Institutes for Research

Dr. Alexander John De Rosa, University of Delaware

Dr. Heather Doty, University of Delaware

Low-Cost Hands-on Shell-and-Tube Heat Exchanger: Design, Manufacture, Test, and In-class Implementation

Aminul Islam Khan, Washington State University

Prof. Bernard J. Van Wie, Washington State University

Dr. Prashanta Dutta, Washington State University

David B. Thiessen, Washington State University

Jacqueline Gartner Ph.D., Campbell University

Dr. Olusola Adesope, Washington State University

Md Shariful Islam, Washington State University

Talodabiolorun Anne Oni, Washington State University

Design and Development of a Pneumatic Bread Board and "Sandbox" for Students in Mechanical Engineering Capstone Design

Dr. Michael Cheadle, University of Wisconsin - Madison

Christian D. Torres, University of Wisconsin, Madison

Theodore Zheng Hong Lee, University of Wisconsin, Madison

Corinn Sievwright, University of Wisconsin, Madison

Using Arduino Microprocessors in a Mechanical Engineering Curriculum

Dr. Scott F. Kiefer, York College of Pennsylvania

Dr. Stephen Andrew Wilkerson P.E., York College of Pennsylvania

Dr. Ashley J. Earle, York College of Pennsylvania

Project-based Learning via Creation and Testing of a Silicone Venous Valve Model

Matthew S. Ballard, Utah Valley University

Taten McConahay, Utah Valley University

Brett Swain, Utah Valley University

Sarah Dayley, Utah Valley University

W138B - MECH - Technical Session 15: Engineering Education Research and Reviews

8:00 A.M. - 9:30 A.M., D133, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Joshua Gargac, Ohio Northern University; Aldo Ferri, Georgia Institute of Technology

This session reviews research and developments in engineering education. Topics include intervention research in statics courses, simulated design exercises, the use of animated visual aids, reflections on cross-disciplinary robotics projects, and ongoing evaluation of junior-level

mechanical vibrations courses.

Development of Online Exams with Minimum Proctoring Requirement

Dr. Shafique Khan, West Virginia University Institute of Technology

Exploring Intervention Research in Statics Courses: A Systematic Review of ASEE Publications from 2013 to 2023

Mr. Ibrahim Nihad Awartani, University of Cincinnati

Iman Shayegani, University of Cincinnati

David Allen Evenhouse, University of Cincinnati

Dr. So Yoon Yoon, University of Cincinnati

Indicators of Change in Mechanical Engineering Instructors' Teaching Practices Across Five Years

Hayden J. Wulf, University of Nebraska, Lincoln

Dr. Grace Panther, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Mathematics and Physics Concepts Behind Our Robot

Isabel Xu, Louis D. Brandeis High School

The Use of Animated Visual Aids in the Education of Undergraduate Engineering Students

Mr. Mohaned Samer Ahmed, Texas A&M Univeristy at Qatar

Osama Desouky, Texas A&M University at Qatar

Dr. Marwa AbdelGawad, Texas A&M University at Qatar

W139 - Mechanics Division Business Meeting

8:00 A.M. - 9:30 A.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Mechanics Division (MECHS)

Moderator: Geoffrey Recktenwald, Michigan State University

W140 - Fostering Diversity and Innovation in Engineering Education

8:00 A.M. - 9:30 A.M., D134, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Trina Fletcher, Florida International University; Bianca Salazar, University of California Merced

This session highlights initiatives aimed at promoting diversity, equity, and inclusion in engineering education, exploring their impact and implications. The first presentation delves into the effects of presidential and chancellor turnover in the United States on broadening participation in STEM fields and enhancing research capacity. Following this, attendees will learn about hands-on science and engineering adventures designed to ignite passion and interest in engineering among diverse future innovators. The session also features a study on strengthening disaster resilience through diaspora engagement, focusing on integrating diaspora communities into engineering education to address challenges in disaster management. Join us for an engaging discussion on fostering diversity and innovation in engineering education.

President and Chancellor Turnover in the United States: Impact and Implications for STEM Broadening Participation and Research Capacity Building

Dr. Trina L. Fletcher, Florida International University

Madiha Qasim, North Carolina State University

Destiny M. Washington, Florida International University

Lesia Crumpton-Young, Texas Southern University

Sparking Engineering Passion: Hands-on Science and Engineering Adventures for Diverse Future Innovators

Bianca Estella Salazar, University of California, Merced

Melissa Almeida, University of California, Merced

Zenaida Aguirre Munoz Ph.D., University of California, Merced

Maribel Viveros, University of California, Merced

Strengthening Disaster Resilience Through Diaspora Engagement: A Study on Integrating Diaspora Communities into Engineering Education

Ms. Erika Judith Rivera P.E., Florida International University

Claudia Calle Müller, Florida International University

Miss Rubaya Rahat, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

W140B - Empowering Diversity in Engineering Education: Strategies and Impacts

8:00 A.M. - 9:30 A.M., A104, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Anne Leak, University of California, Santa Barbara; Gabriella Fleming

This session explores various strategies aimed at supporting diversity and inclusivity in engineering education. The presentations delve into the challenges faced by underrepresented groups in engineering, including primary caregivers, low-income students, and minoritized individuals. Attendees will gain insights from a systematic literature review on supporting undergraduate engineering students who are primary caregivers, as well as an evaluation of community-building initiatives to bolster the success of low-income engineering students. Additionally, the session examines the impact of engineering summer camp counseling on students' community cultural wealth and engineering identities. Lastly, the discussion will focus on the influence of the new diversity, equity, and inclusion (DEI) landscape on the recruitment and retention of minoritized engineering students. Join us to explore effective approaches for fostering diversity and inclusivity in engineering education.

Supporting Undergraduate Engineering Students Who Are Primary Caregivers to Children: A Systematic Literature Review

Dr. Julie M. Smith, CSEdResearch.org

Supporting the Success of Low-Income Engineering Students through Community-Building (Evaluation)

Dr. Anne E. Leak, University of California, Santa Barbara

The Impact of Engineering Summer Camp Counseling on Students' Community Cultural Wealth and Engineering Identities

Dr. Gabriella Coloyan Fleming

Dr. Christine Julien, University of Texas at Austin

Ms. Kiersten Elyse Fernandez, University of Texas at Austin

The Impact of the New DEI Landscape on Minoritized Engineering Students' Recruitment and Retention

Jordan Williamson, CSEdResearch

Dr. Julie M. Smith, CSEdResearch

Dr. Monica McGill, Institute for Advanced Engineering

"Tricks of the Trade": Sharing the Experiences of Queer and Trans Graduate Students

Laurel Lynn ONeill, Penn State University

Luis Delgado Jr., Penn State University

Dr. Stephanie Cutler, Penn State University

Dr. Sarah E. Zappe, Penn State University

Work in Progress: Investigation of Student-Faculty Micro-Interactions on Students' Sense of Belonging through Organized Student-Faculty Lunches

Tiffany Chan, University of California, Davis

Tate L. Chatfield, University of California, Davis

Dr. Xianglong Wang, University of California, Davis

An Autoethnography of the Student Experience Solving an Open-Ended Statics Problem

Katelyn Churakos, University at Buffalo, The State University of New York

Jayden Mitchell, University at Buffalo, The State University of New York

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Work-In-Progress: How an Engineering Education Research Team's Culture Impacts the Undergraduate Research Experience

Lorna Treffert, University at Buffalo, The State University of New York

Dr. Courtney June Faber, University at Buffalo, The State University of New York

Ms. Isabel Anne Boyd, University of Tennessee, Knoxville

Exploring the Relationship between Transfer Students' Social Networks and their Experience of Transfer Shock

Noor Aulakh, Rowan University

JoyLynn Torelli, Rowan University

Alexandria Ordoveza, Rowan University

Darby Rose Riley, Rowan University

Dr. Kaitlin Mallouk, Rowan University

W147 - Student Division Technical Session 1: Student Experiences and Support

8:00 A.M. - 9:30 A.M., C126, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Caroline Cresap, Louisiana Tech University; Ashtyne Monceaux

W149B - TELPhE Business Meeting

8:00 A.M. - 9:30 A.M., WILLAMETTE 8, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Technological and Engineering Literacy/ Philosophy of Engineering Division (TELPhE)

Moderator: Soheil Fatehiboroujeni, Cornell University

This meeting is for all division members or those interested

in advancing Technological Literacy and the Philosophy of Engineering.

W151 - Women in Engineering Division (WIED) Technical Session 5 - Careers and Professional Identity

8:00 A.M. - 9:30 A.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Yanjun Yan, Western Carolina University

The papers in this session address careers, professional identities, and the growth of women in engineering disciplines.

Exploring Career-path Streaming through an Intersectional Lens: Race, Gender, and Engineering in the Canadian Context

Dr. Andrea Chan, University of Toronto

Dr. Cindy Rottmann, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

Ms. Dimpho Radebe, University of Toronto

Ms. Emily Macdonald-Roach, University of Toronto

Are Hardhats Required for Engineering Identity Construction? Gendered and Racialized Patterns in Canadian Engineering Graduates' Professional Identities

Ms. Emily Macdonald-Roach, University of Toronto

Dr. Cindy Rottmann, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

Dr. Andrea Chan, University of Toronto

Ms. Dimpho Radebe, University of Toronto

Ms. Saskia van Beers, University of Toronto

Sasha-Ann Eleanor Nixon, University of Toronto

Illuminating Growth Among Women in Engineering: A Retrospective on ASEE Data

Ms. Kristin L. Schaefer P.E., University of Houston

Dr. Jerrod A. Henderson, University of Houston

W155 - Engineering Leadership Development Division (LEAD) Technical Session: Innovative Approaches to Teaching & Developing Engineering Leadership

8:00 A.M. - 9:30 A.M., G129, OREGON CONVENTION CENTER

Sponsor: Engineering Leadership Development Division (LEAD)

Leadership Capabilities Exploration and Development via an Experiential Leadership Course: A Work in Progress

Dr. Kim Graves Wolfinbarger, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Assessing Student Engagement, Success, Leadership and Teamwork Skills with Respect to Team Role Selection and Execution

Dr. Edward Latorre, University of Florida

Assessing the Effectiveness of 'Research Design' as a Pedagogical Tool for Promoting the skill of 'Decision-making' Towards Developing Leadership in Engineering Students

Dr. Brainerd Prince, Plaksha University

Dr. Sumita Ambasta

Mr. Vinayak Krishan Joshi, Plaksha University

Assessing Leadership Development through a Leadership Practice Project: A Work in Progress

Dr. Kim Graves Wolfinbarger, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Applying Aspects of Professional Settings to Student Teaming in an Engineering and Design Course

Robert Benjamin Simon, Georgia Institute of Technology

James Field

Lauren Stewart, Georgia Institute of Technology

W157 - Faculty Development Division (FDD) Technical Session 8

8:00 A.M. - 9:30 A.M., E142, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Kathryn Dimiduk, Cornell University; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 8

Exploring the Role of Emotions in Foundational Electrical Engineering Courses

Ing. Fabiola G. Rosales Sanchez, Virginia Polytechnic Institute and State University

Dr. Nicole P. Pitterson, Virginia Polytechnic Institute & State University

Faculty Perspectives on Undergraduate Use of Generative Artificial Intelligence (GAI) Assistance: A Work-in-Progress

Michaela Harper, Utah State University

Dr. Cassandra McCall, Utah State University

The Idea Acceptance Model

Mr. Jacob Michael Elmasry, The University of Sydney

WIP: A Knowledge Graph to Share and Discover High-Impact Practices and Support Decision-Making

Dr. Natalia Villanueva Rosales, The University of Texas at El Paso

Dr. Ann C. Gates, The University of Texas at El Paso

Lani Nicole Godenzi, The University of Texas at El Paso

Francisco Osuna, The University of Texas at El Paso

Angel U. Ortega, The University of Texas at El Paso

Veronica A. Carrillo, The University of Texas at El Paso

W159 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 2

8:00 A.M. - 9:30 A.M., B118, OREGON CONVENTION CENTER

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

An Experience Report on Reducing Barriers by Removing Prerequisites for a CS 1 Introductory Programming Course

Dr. Udayan Das, Saint Mary's College of California

Christopher Isaac Fulton

Anti-racism, Inclusion, Diversity and Equity in Database Curriculum Through Group Research Projects on Historical, Social and Ethical Database Related Topics

Dr. Ioulia Rytikova, George Mason University

Dr. Mihai Boicu, George Mason University

Asset-Based Approaches to Transformative Learning: Community and Culture in an Undergraduate Engineering Research Program at a Hispanic Serving Institution

Dr. Hilda Cecilia Contreras Aguirre, New Mexico State University

Patricia Nicole Delgado, New Mexico State University

Luis Rodolfo Garcia Carrillo, New Mexico State University

Audio Narratives as a Way of Voicing Marginalized Student Experience

Dr. Stephen Secules, Florida International University

Dr. Cassandra McCall, Utah State University

Maimuna Begum Kali, Florida International University

Gabriel Van Dyke, Utah State University

Vanessa Tran, Utah State University

Borderlands First-Generation-in-Engineering Experiences-Learning with and about Students at the Nexus of Nation, Discipline, and Higher Education

Dr. Sarah Hug, Colorado Evaluation and Research Consulting

Raena Cota, New Mexico State University

Ruth Constansa Torres Castillo, New Mexico State University

Enrico Pontelli, New Mexico State University

Adan Maximiliano Delval, New Mexico State University

W159B - ECSJ Business Meeting

8:00 A.M. - 9:15 A.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

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

Moderators: Marissa Tsugawa, Utah State University - Engineering Education; Robin Fowler, University of Michigan; Trevion Henderson, Tufts University

W181 - Conversation with CDEI's Chair Elect Dr. Christina Alston

8:00 A.M. - 9:30 A.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Christina Anlynette Alston, University of Colorado Boulder

Join Dr. Christina Alston, the newly elected Chair of the CDEI, for an interactive and insightful session. At this conversation, Dr. Alston will share her vision for CDEI for the 2024-2025 term, discuss how this vision was developed, and explore ideas for fostering collaboration among different divisions.

This is not just a presentation—it's a chance for you to share your experiences, insights, and suggestions on how you have or would like to engage with CDEI. Dr. Alston is eager to hear from members of the community and believes that our collective efforts will drive meaningful and action-based organization.

W181B - Safe Zone Ally Training - Level 3

8:00 A.M. - 9:30 A.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Stephanie Farrell, Rowan University

Safe Zone Workshops are interactive, research-informed workshops for students, faculty, and the professional community, during which participants will 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. 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. 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, please visit https://lgbtq.asee.org.

W194A - SPONSOR TECH SESSION: Calling All Educators! Do you Dream of Educational Products that Perfectly Fit Your Teaching Style and Student Needs? Presented by McGraw Hill

8:00 A.M. - 9:30 A.M., B110 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Want to make learning an active, engaging, and meaningful experience for students? In this workshop, you can help shape the future of learning tools by providing feedback on what YOU want to see.

What to Expect:

• Future-Focused Brainstorming: Help us envision the ideal educational product. What features would revolutionize your classroom? Weigh in on multimedia elements, interactives, and updates you want to help keep students engaged and actively learning.

• Collaborative Problem-Solving: Work with fellow educators to identify solutions and develop strategies for impactful learning experiences.

Benefits for You:

• Direct Impact: Your feedback will directly influence the development of future educational products.

• Networking Opportunities: Connect with fellow educators, share best practices, and build a community passionate about improving learning.

Refreshments will be served. Space is limited.

W194B - SPONSOR TECH SESSION: Foundations for Successful Program Assessment, Presented by ABET

8:00 A.M. - 9:30 A.M., B112 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical 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.

Speakers:

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

Robyn Hall, Director, Professional Programs, ABET

W269 - FOCUS ON EXHIBITS: Networking Break & NSF Grantees Poster Session

9:45 A.M. - 11:15 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Don't miss the last opportunity to network in the exhibit hall. Explore the latest products, services, and solutions showcased by exhibitors. From cutting-edge technologies to innovative strategies, uncover valuable insights and discover new opportunities. Make sure to peruse the posters from the National Science Foundation's 256 grantees!

W269B - Exhibit Hall and Poster Board Viewing Open

9:00 A.M. - 12:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W269C - ASEE Bistro - Sponsored by Great Minds in STEM

9:00 A.M. - 12:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

W278 - NSF Grantees Poster Session

9:45 A.M. - 11:15 A.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: NSF Grantees Poster Session

Board 183: A Case Study of AFL Models on Factors of Engaged Learning in STEM Education

Dr. Jing Yan, Tennessee State University

Dr. Lin Li P.E., Tennessee State University

Board 184: A Layered Mentoring Approach for Engineering Excellence

Dr. Katherine Acton, University of St. Thomas

Dr. Jennifer E. Holte, University of St. Thomas

Dr. Deborah Besser, University of St. Thomas

Dr. Kundan Nepal, University of St. Thomas

Board 185: "Someone has Invested in Me to Do This": Supporting Low-Income Students to Persist in STEM Through a NSF S-STEM Grant

Dr. Rachel Funk, University of Nebraska, Lincoln

Jim Lewis, University of Nebraska, Lincoln

Leilani Pai, University of Nebraska, Lincoln

Johan Benedict Cristobal, University of Nebraska, Lincoln

Brittany Rader

Board 186: A Hands-On, Dual-Credit Mechatronics Pathway Overview for Secondary & Post-Secondary Educators

Dr. Karen Wosczyna-Birch, National Center for Next Generation Manufacturing

Wendy Robicheau

Board 187: A Hybrid Community of Practice Model to Prepare Pre-Service STEM Teachers to Teach Engineering

Dr. Betsy Chesnutt, University of Tennessee at Knoxville

Board 188: A Legacy of Success: The High Achievers in STEM

Dr. Rahman Tashakkori, Appalachian State University

Dr. Jennifer R. McGee, Appalachian State University

Dr. Cindy Norris, Appalachian State University

Board 189: A Mentor's Reflection on Challenges of Practice in a Scholarship Program for Lower-Income Computing Students

Mrs. Tiana Solis, Florida International University

Dr. Stephen Secules, Florida International University

Ms. Nivedita Kumar, Florida International University

Mrs. Jacqueline Faith Sullivan, University of Central Florida

Dr. Ken Christensen P.E., University of South Florida

Dr. Michael Georgiopoulos, University of Central Florida

Dr. Mark Allen Weiss, Florida International University

Board 190: A Mixed-Methods Study of Statistical Thinking in Engineering Practice

Dr. Zachary Del Rosario, Franklin W. Olin College of Engineering

Jin Ryu

Erika Saur

Board 191: A Model for Engineering Education Professional Development for K-12 Science Teachers

Mrs. Kathleen Ann Dinota, Stony Brook University

Dr. Monica Bugallo, Stony Brook University

Board 192: A Support System for Low-Income Students to Catalyze Diversity and Success

Dr. Kaitlin Mallouk, Rowan University

Dr. Juan M. Cruz, Rowan University

Dr. Jess W. Everett, Rowan University

Dr. Stephanie Farrell, Rowan University

Abagael Anne Riley, Rowan University

Board 193: Adaptive v. Faulty Adaptive Learning: The Interplay Between Knowledge About Task and Self-Regulation

Dr. Oenardi Lawanto, Utah State University

Dr. Angela Minichiello, Utah State University

Mr. Talha Naqash, Utah State University

Zain ul Abideen, Utah State University

Board 194: Advancing Access, Diversity, Equity, and Inclusion in STEM for Minoritized Students Through Faculty Professional Development

Dr. Pheather R. Harris, University of California, Irvine

Tayloria Adams, University of California, Irvine

Board 195: Amplifying Voices for Change: Exploring Faculty Insights on Student Audio Narratives Through Focus Group Discussions

Dr. Cassandra McCall, Utah State University

Dr. Stephen Secules, Florida International University

Gabriel Van Dyke, Utah State University

Maimuna Begum Kali, Florida International University

Vanessa Tran, Utah State University

Board 196: An 'Inspiration Kit' for Building a Culture that Fosters Engineering Identity

Dr. Yen-Lin Han, Seattle University

Dr. Kathleen E. Cook, Seattle University

Dr. Jennifer A. Turns, University of Washington

Dr. Gregory Mason P.E., zyBooks, A Wiley Brand

Dr. Teodora Rutar Shuman, Seattle University

Board 197: An Exploration of How Faculty Advising Influences Doctoral Student Psychological Safety and the Impact on Work-Related Outcomes

Larkin Martini, Virginia Polytechnic Institute and State University

Dorian Bobbett, University of Michigan

Jeanne Sanders, University of Michigan

Dr. Karin Jensen, University of Michigan

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Board 198: An Innovation-Themed National Science Foundation S-STEM Grant Program

Dr. Karl D. Schubert FIET, University of Arkansas

Dr. Carol S. Gattis, University of Arkansas

Xochitl Delgado Solorzano, University of Arkansas

Jennie S. Popp Ph.D.

Dr. Paul D. Adams, University of Arkansas

Mrs. Leslie Bartsch Massey, University of Arkansas

Mr. Thomas Carter III, University of Arkansas

Chunhua Cao, The University of Alabama

Board 199: An Overview of VADERs (Virtual/Augmented-Reality-based Discipline Exploration Rotations)

Mr. Jae Hoon Ma, Georgia Institute of Technology

Ece Erdogmus, Georgia Institute of Technology

Erica Ryherd, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Kyungki Kim, University of Nebraska, Lincoln

Prof. Catherine Armwood-Gordon, Tennessee State University

Board 200: Analyzing Immersive Simulation-based Learning Modules in Remote and In-Person Settings

Dr. Omar Ashour, Pennsylvania State University, Behrend College

Dr. Sabahattin Gokhan Ozden, Pennsylvania State University, Abington

Dr. Ashkan Negahban, Pennsylvania State University, Great Valley

Board 201: Assessing Change in Research Perceptions Following Participation in an REU Site Focused on Converting Biological Wastes into Products of Value

Prof. Brendan Higgins, Auburn University

Laura Parson, North Dakota State University

Dr. Sushil Adhikari, Auburn University

Fredricka Saunders, North Dakota State University

Board 202: Assessing the Design of an AR-based Physics Exploratorium

Ms. Elizabeth Flynn, San Diego State University

Molly Horner, San Diego State University

Adrian Larios, San Diego State University

Ryan Thomas Rios

India Elizabeth Wishart, San Diego State University

Janet Bowers, San Diego State University

Dr. Dustin B. Thoman, San Diego State University

Matthew E. Anderson, San Diego State University

Board 203: Assuring Student Success in Engineering-Technology Programs

Dr. Mohsen Ayoobi, Wayne State University

Dr. Mukasa E. Ssemakula, Wayne State University

David Merolla, Wayne State University

Dr. Ece Yaprak, Wayne State University

Mr. Mark A. Jager, Wayne State University

Board 204: Barriers and Supports to Divergent Thinking in Engineering Problem-Solving: An Engineering Student Project Experience

Shannon M. Clancy, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Dr. Colleen M. Seifert, University of Michigan

Board 205: Being Mentored and then Mentoring: A Four-Year Success Story with CISTAR and NSBE SEEK Partnering in an NSF-funded Research Experience and Mentoring (REM) Summer Program

Dr. Denise M. Driscoll, Purdue University, West Lafayette

Mr. Thomas Harris, National Society of Black Engineers

Maeve Drummond Oakes, Purdue University

Board 206: Best Practices and Lessons Learned for Hiring Student Staff in An Academic Makerspace

Audrey Boklage, University of Texas at Austin

Board 207: Breaking Digital Barriers: Designing a Sociotechnical System for Remote Digital Assistance

Kirk Thelen, Michigan Technological University

Timothy Lawrence Perr, Michigan Technological University

Briana C. Bettin, Michigan Technological University

Dr. Kelly Sheridan Steelman, Michigan Technological University

Dr. Leo C. Ureel II, Michigan Technological University

Dr. Charles Wallace, Michigan Technological University

Board 208: Breaking Through the Obstacles: Strategies and Support Helping Students Succeed in Computer Science

Dr. Jelena Trajkovic, California State University, Long Beach

Dr. Lisa M. Martin-Hansen, California State University, Long Beach

Anna Bargagliotti, Loyola Marymount University

Dr. Christine Alvarado, University of California, San Diego

Cassandra M. Guarino, University of California, Riverside

Janel Ancayan, California State University, Long Beach

Joseph Alex Chorbajian, California State University, Long Beach

Kent Vi, California State University, Long Beach

Board 209: Bridging Language Barriers in Healthcare Education: An Approach for Intelligent Tutoring Systems with Code-Switching Adaptation

Dr. Zechun Cao, Texas A&M University, San Antonio

German Zavala Villafuerte

Ali Jalooli

Renu Balyan

Sanaz Rahimi Moosavi

Francisco Iacobelli, Northeastern Illinois University

Board 210: Bringing Engineering Ethics Education into the High School Curriculum

Dr. Michael Johnson, Texas A&M University

Prof. Amarnath Banerjee, Texas A&M University

Dr. Bimal P. Nepal, Texas A&M University

Rutwik Dehade, Texas A&M University

Glen Miller

Board 211: Building a 'Project-Based Learning for Rural Alabama STEM Middle School Teachers in Machine Learning and Robotics' RET Site (Year 2)

Dr. Xiaowen Gong, Auburn University

Dr. Daniela Marghitu, Auburn University

Melody L. Russell

Chih-hsuan Wang

Dr. Thaddeus A. Roppel, Auburn University

Board 212: Building a Conceptual Understanding of Women STEM Faculty's Participation in Entrepreneurship Education Programs

Dr. Prateek Shekhar, New Jersey Institute of Technology

Dr. Maya Menon, New Jersey Institute of Technology

Board 213: Building an AI Certificate and a Computing Identity: Broadening Participation in Computing and Artificial Intelligence at a Hispanic-serving Community College

Dr. Sarah L. Rodriguez, Virginia Polytechnic Institute and State University

Taylor Johnson, Virginia Polytechnic Institute and State University

Yeny Jimenez, Miami Dade Community College

Antonio Delgado

Board 214: Building an Understanding of Black Families' Engineering, Design, and Inventive Practices

Emmanuella Obiageli Ejichukwu, University of Michigan, Dearborn

DeLean Tolbert Smith, University of Michigan, Dearborn

Hanadi Matar, University of Michigan, Dearborn

Board 215: Building Capacity as an Engineering Education Researcher: First-Year Progress of an NSF ECR: BCSER Grant

Dr. Lizandra C. Godwin, University of New Mexico

Board 216: Building Community for Inclusive Teaching: Can We Bridge the Valley of Neglect?

Prof. Maryam Darbeheshti, University of Colorado Denver

Prof. Tom Altman

Prof. Katherine Goodman, University of Colorado Denver

Dr. Heather Lynn Johnson

Marie E. Evans, University of Colorado Denver

Prof. David C. Mays, University of Colorado Denver

Board 217: Building Interest in Technology Careers for High School Students

Dr. Karen Wosczyna-Birch, CT College of Technology

Wendy Robicheau

Board 218: Building Student Success in Assistive Technology

Dr. Li Liu, California State University, Northridge

Andy Lin

Taeyou Jung, California State University, Northridge

Mauro Carassai, California State University, Northridge

Board 219: C6-LSAMP - Building Bridges to the Baccalaureate

Dominic J. Dal Bello, Allan Hancock College

Dr. Jens-Uwe Kuhn, Santa Barbara City College

Jason Curtis, Cuesta College

Christine L. Reed, Allan Hancock College

Eva Schiorring, STEMEVAL

Dr. Brian Youngblood, Allan Hancock College

Sean Marc Gottlieb, Allan Hancock College

Sarah Hulick, Cabrillo College

Francisco E. Jimenez, Cabrillo College

Gabriel Cuarenta-Gallegos, Cuesta College

Dr. Leila Jewell, Monterey Peninsula College

Mr. Thomas Rebold, Monterey Peninsula College

Marcella Klein Williams, Oxnard College

Justin William Miller, Oxnard College

Franco Javier Mancini, Santa Barbara City College

Joe Selzler, Ventura College

Board 220: CAREER: 'Support our Troops': Re-storying Student Veteran and Service Member Deficit in Engineering Through Professional Formation and Community Advocacy: YEAR 3

Dr. Angela Minichiello, Utah State University

Hannah Wilkinson, Utah State University

Samuel Shaw, Utah State University

Allison Miles, Utah State University

Board 221: CAREER: Disrupting the Status Quo Regarding Who Gets to be an Engineer - Exploring the Intent-to-Impact Gap for Rectifying Inequity

Dr. Jeremi S. London, Vanderbilt University

Dr. Brianna Benedict McIntyre, National Action Council for Minorities in Engineering

Ms. Nicole Adia Jefferson, Virginia Polytechnic Institute and State University

Board 222: CAREER: Engineering in Youth-led Technology-rich Settings: Promoting Belonging and Preventing Harm

Dr. Isabella Stuopis, Boston College

Kiana Alexa Ramos

Caitlyn Hancock

Emanuel Joseph Louime

Dr. Avneet Hira, Boston College

Board 223: CAREER: Exploring the Intersection of LGBTQ Identities and STEM Disciplines: A Qualitative Narrative Approach

Dr. Bryce E. Hughes, Montana State University

Emmanuel Tetteh Teye, Montana State University

Nickolas Lambert, Montana State University

Board 224: Characterizing Design Activity Engagement: A Summary of Insights from Year Two

Elliott Clement, Oregon State University

Dr. James L. Huff, Harding University

Dr. Shane A. Brown P.E., Oregon State University

Board 225: Collaborative Research: Research Initiation: Assessing Global Engagement Interventions to Advance Global Engineering Competence for Engineering Formation

Prof. Scott Schneider, University of Dayton

Prof. Erick S. Vasquez-Guardado, University of Dayton

Dr. Corinne H. Mowrey, University of Dayton

Michael Moulton, University of Dayton

Jeanne Holcomb, University of Dayton

Dr. Homero Murzi, Virginia Polytechnic Institute and State University

Dr. Matthew A. Witenstein, University of Dayton

Board 226: Collaborative Research: The Organizational Climate Challenge: Promoting the Retention of Students from Underrepresented Groups in Doctoral Engineering Programs: Year 1

Dr. Julie Aldridge, The Ohio State University

Nicole Else-Quest, University of North Carolina at Chapel Hill

Dr. So Yoon Yoon, University of Cincinnati

Dr. Joe Roy, American Society for Engineering Education

Board 227: Complementary Affordances of Virtual and Physical Laboratories for Developing Engineering Epistemic Practices

Dr. Jeffrey A. Nason, Oregon State University

Samuel B. Gavitte, Tufts University

Dr. Milo D. Koretsky, Tufts University

Board 228: Comprehending the Complex Context of Community Colleges: STEM Student Success at a Hispanic-Serving Institution

Dr. Lucy Arellano Jr., University of California, Santa Barbara

Board 229: Computational Thinking in the Formation of Engineers: Year 4

Dr. Noemi V. Mendoza Diaz, Texas A&M University

Dr. Deborah Anne Trytten, University of Oklahoma

Dr. Russell D. Meier, Milwaukee School of Engineering

Dr. Harry A. Hogan, Texas A&M University

Dr. So Yoon Yoon, University of Cincinnati

Board 230: Contextualized Scaffolding for Engineering Faculty to Facilitate the Adoption of EBIPs

Dr. Shane A. Brown P.E., Oregon State University

Dr. Prateek Shekhar, New Jersey Institute of Technology

Jeff Knowles, Oregon State University

Stephanie Adams, Oregon State University

Board 231: Contextualizing Engineering Science Courses by Teaching History and Judgement

Martell Cartiaire Bell, The University of Iowa

Dr. Aaron W. Johnson, University of Michigan

Prof. Rachel Vitali, The University of Iowa

Board 232: Co-teaching in Undergraduate STEM Education: A Strategy to Enhance the Learning and Teaching Environment in Math, Physics, and Engineering Courses

Dr. Burcu Ozden, Pennsylvania State University

Dr. Michael Kagan, Pennsylvania State University

Dr. Matthew A. Fury, Pennsylvania State University

Dr. Andrei Blinkouski, Pennsylvania State University

Dr. Zafer Hatahet, Embry-Riddle Aeronautical University, Prescott

Dr. John Majewicz, Pennsylvania State University

Board 233: Creating the Capacity for CS Education Researchers to Produce Research That is High-quality and Equity-Focused

Dr. Monica McGill, Institute for Advancing Computing Education

Isabella Gransbury, North Carolina State University

Leigh Ann DeLyser

Jennifer Rosato, University of Minnesota, Twin Cities

Julie M. Smith

Board 234: Current Progress of Providing Rich Immediate Critique of Anti-patterns in Student Code

Dr. Leo C. Ureel II, Michigan Technological University

Dr. Laura E. Brown, Michigan Technological University

Dr. Michelle E. Jarvie-Eggart P.E., Michigan Technological University

Dr. Jon Sticklen, Michigan Technological University

Laura Albrant, Michigan Technological University

Mary Benjamin, Michigan Technological University

Daniel Masker, Michigan Technological University

Pradnya Pendse

Joseph Roy Teahen, Michigan Technological University

Board 235: Design and Implementation of a Professional Development Course for Interdisciplinary Computational Science Graduate Students

Prof. Satchi Venkataraman, San Diego State University

Dr. Dustin B. Thoman, San Diego State University

Ms. Susan Wainscott, University of Nevada, Las Vegas

Prof. Jose E. Castillo, San Diego State University

Board 236: Design for Sustainability: How Mental Models of Social-Ecological Systems Shape Engineering Design Decisions

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

Dr. Tripp Shealy, Virginia Polytechnic Institute and State University

Felicity Bilow, Virginia Polytechnic Institute and State University

Board 237: Designing a Community of Transformation for Justice: A Design Case Capturing the Beginnings

Dr. Nadia N. Kellam, Arizona State University

Dr. Susannah C. Davis, University of New Mexico

Mrs. Kristen Ferris, University of New Mexico

Madeleine Jennings, Arizona State University

Katharine Getz, Pennsylvania State University

Earl E. Lee, Arizona State University

Dr. Vanessa Svihla, University of Texas at Austin

Board 238: Designing this Space for Whom? Characterization of Makerspace Non-users

Ms. Elisa Bravo, University of Michigan

Jesse Austin-Breneman, University of Michigan

Board 239: Developing an Instructor's Interface for FossilSketch Application to Provide Knowledge-Sharing Collaborations Between Science Educators

Dr. Anna Stepanova, Texas A&M University

Dr. Saira Anwar, Texas A&M University

Christina Belanger, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Board 240: Developing Critically Conscious Aerospace Engineers through Macroethics Curricula: Year 1

Dr. Aaron W. Johnson, University of Michigan

Dr. Corin L. Bowen, California State University, Los Angeles

Ms. Elizabeth Ann Strehl, University of Michigan

Sabrina Olson, University of Michigan

Ricardo Elias, California State University, Los Angeles

Board 241: Developing PLC and Robotic Automation Technician Certificate Program for Service Industries

Dr. Shouling He, Vaughn College of Aeronautics and Technology

Dr. Douglas Jahnke, Vaughn College of Aeronautics and Technology

Board 242: Developing Valid and Equitable Tasks for Assessing Programming Proficiency: Linking Process Data to Assessment Characteristics

Dr. Mo Zhang, Educational Testing Service

Amy Jensen Ko, University of Washington

Chen Li, Educational Testing Service

Board 243: Development and Validation of Learning Through Making Instrument (LMI) Project Overview

Mr. Leonardo Pollettini Marcos, Purdue University

Dr. Julie S. Linsey, Georgia Institute of Technology

Dr. Melissa Wood Aleman, James Madison University

Dr. Robert L. Nagel, Carthage College

Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Prof. Eric Holloway, Purdue University, West Lafayette

Board 244: Do DEI Efforts Count in Tenure Evaluations? An Experiment in Two STEM Fields

Dr. Damani White-Lewis, University of Pennsylvania

Jennifer Wessel, University of Maryland, College Park

Alexandra Kuvaeva, University of Maryland, College Park

KerryAnn O'Meara

Board 245: Does Integrating Innovative Technologies into STEM Education Help Advance K-12 Students' STEM Career Outcomes? A Synthesis Study

Dr. Yue Li, Miami University

Ms. Maressa L. Dixon, Miami University

Dr. Sarah Woodruff

Board 246: Early-Career Engineers' Experiences with Equity and Ethics in the Workplace

Chika Winnifred Agha, Colorado State University

Dr. Amir Hedayati Mehdiabadi, University of New Mexico

Dr. Rebecca A. Atadero, Colorado State University

Dr. Pinar Omur-Ozbek, Colorado State University

Carlotta Duenninger

Board 247: ECE-WisCom: Enhancing Student Performance and Persistence through a Wisdom Community

Dr. Hilda Cecilia Contreras Aguirre, New Mexico State University

Luis Rodolfo Garcia Carrillo, New Mexico State University

William Hamilton, New Mexico State University

Marshall Allen Taylor, New Mexico State University

Lauren Cifuentes, New Mexico State University

Board 248: ECS Scholars Progress Report: Outcomes from a Data-Driven Support Strategy

Dr. Michael W. Thompson, Baylor University

Dr. Anne Marie Spence, Baylor University

William A. Booth, Baylor University

Taylor Wilby, Baylor University

Board 249: Effect of Carbon Nanomaterials on the Compressive Strength of Cement Mortar: Research at Marshall University's 2023 REU Site

Jay Bow, Fairmont State University

Dr. Sungmin Youn, Marshall University

Dr. Andrew P. Nichols P.E., Marshall University

Dr. Sukjoon Na, Marshall University

Board 250: Electrical and Computer Engineering Canvas Applications to Improve Fundamental Math Skills in Pre-Calculus Math

Monika Neda, University of Nevada, Las Vegas

Dr. Jacimaria Ramos Batista, University of Nevada, Las Vegas

Jorge Fonseca Cacho, University of Nevada, Las Vegas

Vanessa W. Vongkulluksn Ph.D., University of Nevada, Las Vegas

Mei Yang, University of Nevada, Las Vegas

Board 251: Electricity Access and Sustainable Business Models Educators' Workshop

Dr. Pritpal Singh, Villanova University

Prof. Henry Louie, Seattle University

Dr. Susan M. Lord, University of San Diego

Scarleth Vanessa Vasconcelos, Villanova University

Board 252: Elementary Teacher Professional Learning in Equitable Engineering Pedagogies for Multilingual Students

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Dr. Mary McVee

Board 253: Emerge Scholars Program: Increasing Enrollment in Engineering Technology

Mr. Garrett Powell Lee, South Florida State College

Board 254: Emphasizing Broader Impacts and Societal Benefits in a Developing ERC

Gina Ristani, University of Minnesota, Twin Cities

Keisha Varma, University of Minnesota, Twin Cities

Seth Thompson, University of Minnesota, Twin Cities

Board 255: Enabling In-Class Hands-On Electronics Opportunities through Flipped Classroom using Openly Available Videos

Prof. Jennifer Hasler, Georgia Institute of Technology

Board 256: Encouraging Low-Income, High Achieving Undergraduate Students to Pursue Faculty Positions: Developing Socially Conscious Approaches to Pedagogy

Janna Jobel, University of Massachusetts, Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

Board 257: Engineering BRIDGE Program to Enhance Transfer Students' Sense of Belonging

Dr. Jeyoung Woo, California State Polytechnic University, Pomona

Dr. Jinsung Cho, California State Polytechnic University, Pomona

Prof. Winny Dong, California State Polytechnic University, Pomona

Dr. M. Ronald Yeung P.E., California State Polytechnic University, Pomona

Dr. Winny Dong

Prof. Brian Ramirez

Board 258: Engineering Design Thinking in the Age of Generative Artificial Intelligence

John Clay, University of Texas at Austin

Xingang Li, University of Texas at Austin

Dr. Molly H. Goldstein, University of Illinois Urbana-Champaign

Dr. H. Onan Demirel, Oregon State University

Darya Zabelina

Dr. Charles Xie

Dr. Zhenghui Sha, University of Texas at Austin

Board 259: Engineering Faculty Members' Experience of Professional Shame: Summary of Insights from Year Three

Dr. James L. Huff, Harding University

Dr. Amy L. Brooks, University of Pittsburgh

Julianna R. Beehn, Harding University

Olivia I. Bell, Harding University

Chelsei Lasha Arnold, Harding University

Board 260: Engineering Identities in Low-Income Students Across their First Year of College

Dr. Ryan Scott Hassler, Pennsylvania State University, Berks Campus

Dr. Catherine L. Cohan, Pennsylvania State University

Dawn Pfeifer Reitz, The Pennsylvania State University

Sonia Delaquito, Pennsylvania State University

Janelle B. Larson, Pennsylvania State University

Dr. Rungun Nathan, Pennsylvania State University, Berks Campus

Board 261: Engineering Technology, Anthropology, and Business: Reflections of Graduate Student Researchers in the Pursuit of Transdisciplinary Learning

Deana Lucas, Purdue University, West Lafayette

Rebecca Martinez, Purdue Polytechnic Graduate Programs

Board 262: Enhancing Deep Knowledge Tracing via Diffusion Models for Personalized Adaptive Learning

Lijun Qian

Prof. Xishuang Dong, Prairie View A&M University

Dr. Yujian Fu P.E., Alabama A&M University

Ming-Mu Kuo, Prairie View A&M University

Shouvon Sarker, Prairie View A&M University

Lijun Qian

Dr. Xiangfang Li, Prairie View A&M University

Board 263: Enhancing Hispanic Engineering Students' Psychosocial Outcomes and Engineering Persistence Outcomes Through a Combination of Active Learning and Video Projects

Dr. Deepak Ganta, Texas A&M International University

Prof. Marcus Antonius Ynalvez, Texas A&M International University

Maria Lopez, Texas A&M International University

Alan Santos, Texas A&M International University

Claudia San Miguel, Texas A&M International University

Sergio Gonzalez Torres, Texas A&M International University

Board 264: Enhancing Sense of Belonging among Engineering and Artificial Intelligence Students: First Insights from the NSF S-STEM Grant in Community College

Mrs. Fanny Silvestri, Chandler-Gilbert Community Colleges

Mrs. Nichole Neal

Erika DeMartini, Chandler Gilbert Community College

Board 265: Enhancing the Transfer Experience through a Collaborative Cohort Program: the Culmination of a 5-year NSF S-STEM Program at a Community College

Dr. Claire L. A. Dancz, Clemson University

Dr. Elizabeth A. Adams P.E., California Polytechnic State University, San Luis Obispo

Dr. Nihal Orfi, Fresno City College

Dr. Yushin Ahn

Emily Evans, Magnolia Consulting

Board 266: Enhancing Transfer Pathways in Computing: An NSF Project Progress Report

Dr. Narges Norouzi, University of California, Berkeley

Dr. Carmen Robinson, University of California, Santa Cruz

Kip Tellez, University of California, Santa Cruz

Board 267: Enhancing Urban Mobility: SmartSAT's Impact on Public Transportation Services and Commuting Experience

Dr. Jeong Yang, Texas A&M University, San Antonio

Dr. Young Lee, Texas A&M University, San Antonio

Mohammad Abdel-Rahman, Texas A&M University, San Antonio

Zechun Cao, Texas A&M University, San Antonio

Board 268: Enhancing Zero-Shot Learning of Large Language Models for Early Forecasting of STEM Performance

Ahatsham Hayat, University of Nebraska, Lincoln

Sharif Wayne Akil, University of Nebraska, Lincoln

Helen Martinez, University of Nebraska, Lincoln

Bilal Khan, Lehigh University

Mohammad Rashedul Hasan, University of Nebraska, Lincoln

Board 269: Equity-focused Goals of Humanitarian Engineering Students: Addressing Systemic Oppression, Amplifying Community Cultural Wealth, Developing Social Justice Self-Efficacy, and Elucidating Career Concerns

Ms. Emma Sophie Stine, University of Colorado Boulder

Prof. Amy Javernick-Will, University of Colorado Boulder

Board 270: Evaluating Implementation of Hands-on Learning Modules Considering Social Cognitive Theory

Riley Jackson Fosbre, Washington State University

Prof. Bernard J. Van Wie, Washington State University

Dr. Prashanta Dutta, Washington State University

Dr. Olusola Adesope, Washington State University

Jacqueline Gartner Ph.D., Campbell University

David B. Thiessen, Washington State University

Md Shariful Islam, Washington State University

Faraz Rahimi, Washington State University

Talodabiolorun Anne Oni, Washington State University

Board 271: Evaluating the Effect of Multi-Attempt Digital Assessments on Student Performance in Foundation Engineering Courses

Dr. Sudeshna Pal, University of Central Florida

Dr. Ricardo Zaurin, University of Central Florida

Sierra Outerbridge, University of Central Florida

Dr. Michelle Taub, University of Central Florida

Prof. Hyoung Jin Cho, University of Central Florida

Board 272: Examining the Catalysts and Barriers that Early-Career Engineers Experience to Their Adaptability at Work

Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

Cecilia La Place, Arizona State University, Polytechnic Campus

Ms. Rachel Figard, Arizona State University

Rashmi Wimansa Neelawathura, Arizona State University, Polytechnic Campus

Board 273: Exploring a Multi-dimensional Characterization of Statics Students' Questions

Kaelyn Marks, Hofstra University

Dr. Saryn Goldberg, Hofstra University

Dr. Chris Venters, East Carolina University

Dr. Amy M. Masnick, Hofstra University

Board 274: Exploring Problem-Solving Experiences in Autism-Inclusion Schools Using Photovoice: A Collaborative Data Collection Process

Ms. Kavitha Murthi, New York University

Dr. Ariana Riccio Arista, Education Development Center

Wendy B. Martin

Dr. Kristie K. Patten, New York University

Board 275: Exploring the Impact of Industry Partnerships to Promote STEM Careers in Rural Middle Schools

Dr. LaTricia Walker Townsend, North Carolina State University

Dr. Tameshia Ballard Baldwin, North Carolina State University

Micaha Dean Hughes, North Carolina State University

Aaron Arenas, North Carolina State University

Board 276: Exploring the Impact of Program Name Change on Gender Diversity in STEM

Faiza Zafar, Rice University

Carolyn Nichol, Rice University

Board 277: Exploring the Intersection of Diversity, Equity, Inclusion, and Ethics in Engineering: Project Overview and Preliminary Results

Ms. Isil Anakok, Virginia Polytechnic Institute and State University

Dr. Justin L. Hess, Purdue University, West Lafayette

Sowmya Panuganti, Purdue Engineering Education

Prof. Brent K. Jesiek, Purdue University, West Lafayette

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Board 278: Faculty and Staff Ideas and Expectations for a Culture of Wellness in Engineering

Ms. Eileen Johnson, University of Michigan

Jeanne Sanders, University of Michigan

Dr. Joseph Francis Mirabelli, University of Michigan

Ms. Sara Rose Vohra, University of Illinois Urbana-Champaign

Dr. Karin Jensen, University of Michigan

Board 279: Failure in Focus: Unpacking the Impact of Video-Based Reflections on Museum Educator Practices

Dr. Amber Simpson, State University of New York at Binghamton

Dr. Adam Maltese, Indiana University, Bloomington

Dr. Kelli Paul, Indiana University, Bloomington

Lauren Penney, Indiana University, Bloomington

Board 280: Family Partnerships in Search for Equity and Excellence in Education: Building a Sense of Belonging with Ownership and Pride Among First-Generation College Students at a Hispanic-Serving Institution

Dr. Juan Salinas, The University of Texas Rio Grande Valley

Griselda Salinas

Elizabeth Salinas, The University of Texas Rio Grande Valley

Yocelin Chavez

Virginia Santana

Sherlyn De Alva

Sheila Cardenas Vazquez

Board 281: Fidelity and Transferability of an Ecological Intervention to Transform Engineering Representation at Scale

Dr. Linda DeAngelo, University of Pittsburgh

Dr. Allison Godwin, Cornell University

Charlie Díaz, University of Pittsburgh

Dr. Eric Trevor McChesney, University of Pittsburgh

Erica McGreevy, University of Pittsburgh

Nelson O. O. Zounlomè, University of Pittsburgh

Kevin Jay Kaufman-Ortiz, Purdue University

Anne-Ketura Elie, University of Pittsburgh

Gerard Dorvè-Lewis, University of Pittsburgh

Maricela Bañuelos, University of California, Irvine

Dr. Matthew Bahnson, Purdue University

Kevin R. Binning

Prof. Natascha Trellinger Buswell, University of California, Irvine

Dr. Christian D. Schunn, University of Pittsburgh

Beverly Conrique, University of Pittsburgh

Liwei Chen, University of Pittsburgh

Carlie Laton Cooper, University of Georgia

Rachel Kelly Forster, University of Pittsburgh

Dr. Danielle V. Lewis, SUNY Fredonia

Dr. Jacqueline Rohde, Georgia Institute of Technology

Board 282: Finding Meaning in Makerspaces: Exploring How Gender Influences Makerspace Definitions Among First-Year Engineering Students

Dr. Hannah Budinoff, The University of Arizona

Ann Shivers-McNair, University of Arizona

Jannatul Bushra, The University of Arizona

Dr. Edward J. Berger, Purdue University, West Lafayette

Board 283: Findings from the Spring 2022 to Spring 2023 Semesters of the PEERSIST Project - A Formation of Engineers Framework for Understanding Self-Efficacy and Persistence among Transfer Students

Cody D. Jenkins, Arizona State University

Ms. Thien Ngoc Y Ta, Arizona State University, Polytechnic Campus

Sarah Johnston, Arizona State University

Dr. Ryan James Milcarek, Arizona State University

Dr. Gary Lichtenstein, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University, Polytechnic Campus

Dr. Karl A. Smith, University of Minnesota, Twin Cities

Board 284: First-Year Experience from Industries of the Future Research Experience for Preservice Teacher in STEM Settings

Prof. Weihang Zhu, University of Houston

Dr. Tomika W. Greer, University of Houston

Dr. Paige Evans, University of Houston

Lei Fan, University of Houston

Dr. Driss Benhaddou, University of Houston

Dr. Gangbing Song, University of Houston

Board 285: First-Year Electrical and Computer Engineering Undergraduate Performance at Identifying Ethical Concerns in IEEE Case Studies

Dr. Todd Freeborn, The University of Alabama

Claire Major, The University of Alabama

Dr. Miriam E. Sweeney, The University of Alabama

Board 286: Formative Assessment of Equity and Inclusion in Student Teams

Andrew Moffat, University of Michigan

Dr. Robin Fowler, University of Michigan

Rebecca L. Matz, University of Michigan

Miss Xiaping Li, University of Michigan

Spencer JaQuay, University of California, Irvine

Madison Jeffrey, University of Michigan

Mark Mills, University of Michigan

Board 287: Fostering Leaders in Technology Entrepreneurship (FLiTE): Second Year Progress

Dr. Paul M. Yanik, Western Carolina University

Dr. Scott Rowe, Western Carolina University

Wendy Cagle, Western Carolina University

Dr. Andrew Ritenour, Western Carolina University

Dr. Chip W. Ferguson, Western Carolina University

Dr. Wesley L. Stone, Western Carolina University

Board 288: Fostering Sustainable Waste-Management Education Through Undergraduate Research

Dr. Noppadon Sathitsuksanoh, University of Louisville

Dr. Zhihui Sun, University of Louisville

Dr. Jason Cullen Immekus, University of Louisville

Board 289: From Logs to Learning: Applying Machine Learning to Instructor Intervention in Cybersecurity Exercises

Aubrey Nicholas Birdwell, Georgia Institute of Technology

Jack Cook, The Evergreen State College

Dr. Richard S. Weiss, The Evergreen State College

Dr. Jens Mache, Lewis & Clark College

Board 290: From Resistance to Readiness – Building Capacity to Pilot and Scale Co-requisite Calculus for First-Year Engineering Gateway Courses

Dr. Darlene M. Olsen, Norwich University

Dr. Michelle Batchelder Burd

Dr. Karen Supan, Norwich University

Dr. Liz Johnson, Liz Johnson Education Consulting

Board 291: Future STEM Leaders: An Innovative Career-Readiness Program for Female Graduate Students

Dr. Alfreda Samira James, Stony Brook University

Dr. Marianna Savoca, Stony Brook University

Dr. Monica Bugallo, Stony Brook University

Catherine A Scott

Board 292: General-Purpose Artificial Intelligence Approaches for Intelligent Tutoring

Mr. Ryan Hare, Rowan University

Dr. Ying Tang, Rowan University

Board 293: How to Teach Debugging? The Next Million-Dollar Question in Microelectronics Education

Haniye Mehraban, Oklahoma State University

Dr. John Hu, Oklahoma State University

Board 294: HSI Implementation and Evaluation Project: The Freshman Year Innovator Experience (FYIE): Bridging the URM Gap in STEM

Dr. Noe Vargas Hernandez, The University of Texas, Rio Grande Valley

Dr. Javier Ortega, 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. Eleazar Marquez, The University of Texas, Rio Grande Valley

Board 295: HSI Planning Project: Integrative Undergraduate STEM Education at Angelo State University (I-USE ASU Grant #2122828)

Dr. Brittany Paige Trubenstein, Angelo State University

Board 296: Immersive Engineering Learning and Workforce Development: Pushing the Boundaries of Knowledge Acquisition in a CAVE

Dr. Opeyemi Peter Ojajuni, Southern University and Agricultural & Mechanical College

brian Warren, Southern University and Agricultural & Mechanical College

Fareed Dawan, Southern University and Agricultural & Mechanical College

Dr. Yasser Ismail, Southern University and Agricultural & Mechanical College

Dr. Albertha Hilton Lawson, Southern University and Agricultural & Mechanical College

Board 297: Impact of Community-based Engineering Lessons on Rural and Indigenous Elementary Students

Dr. Rebekah J. Hammack, Purdue University, West Lafayette

Dr. Tugba Boz, Indiana-Purdue University

Dr. Nicholas Lux, Montana State University

Paul Gannon, Montana State University

Board 298: Supporting Elementary Engineering Instruction in Rural Contexts Through Online Professional Learning and Modest Supports

Dr. Rebekah J. Hammack, Purdue University, West Lafayette

Dr. Julie Robinson, University of North Dakota

Dr. Tugba Boz, Indiana-Purdue University

Min Jung Lee, University of North Dakota

Prof. Ryan G. Summers

Ashley Iveland

Martha Inouye, University of Wyoming

Meghan Macias

Maria Zaman, University of North Dakota

John Galisky, University of California, Santa Barbara

Natalie Johansen, University of Wyoming

Board 299: Impact of Socialization on Graduate Student Education

Dr. Arvin Farid, Boise State University

Board 300: Impact of Virtual Reality on Motor-Skill Performance in Children with Autism Spectrum Disorder

Ngoc Chung Tran, Orange Coast College

Irene X. Liang, Cornell University

Ting Liu, Texas A&M University-San Antonio

Dr. Damian Valles, Texas State University

Board 301: Impacts of the ProQual Institute: Summative Evaluation of Participant Skills, Perceptions, Confidence, and Research Products from a Qualitative Research Institute

Dr. John Ray Morelock, University of Georgia

Dr. Aileen Reid, University of North Carolina, Greensboro

Dr. Ayesha Sherita Sherita Boyce

Chaturved Janaki, University of Georgia

Dr. Nicola W. Sochacka, University of Georgia

Dr. Joachim Walther, University of Georgia

Ayesha Boyce, Arizona State University

Board 302: Implementation of an Equitable and Inclusive After-school STEM Program

Dr. Matthew Aldeman, Illinois State University

Jeritt Williams, Illinois State University

Dr. Jin Ho Jo, Illinois State University

Allison Antink-Meyer, Illinois State University

Board 303: Implementing Oral Exams in Engineering Classes to Positively Impact Students' Learning

Dr. Huihui Qi, University of California, San Diego

Dr. Carolyn L. Sandoval, University of California, San Diego

Prof. Curt Schurgers, University of California, San Diego

Dr. Marko Lubarda, University of California, San Diego

Dr. Alex M. Phan, University of California, San Diego

Dr. Saharnaz Baghdadchi, University of California, San Diego

Dr. Maziar Ghazinejad, University of California, San Diego

Minju Kim, University of California, San Diego

Zongnan Wang, University of California, San Diego

Dr. Nathan Delson, eGrove Education

Board 304: Improving Engineering Mechanics Self-efficacy by Focusing on Abstracting the Physical World as a Precursor to Analysis

Dr. Nigel Berkeley Kaye, Clemson University

Dr. Lisa Benson, Clemson University

Makayla Headley, Clemson University

Komal Rohidas Sonavane

Board 305: Improving Fundamental Mathematics Skills in Pre-Calculus Math Using Placed -Based Engineering Canvas Applications

Monika Neda, University of Nevada, Las Vegas

Dr. Melissa Lynn Morris, University of Nevada, Las Vegas

Mr. Matthew Paul Pusko

Vanessa W. Vongkulluksn Ph.D., University of Nevada, Las Vegas

Dr. JeeHee Lee, University of Nevada, Las Vegas

Dr. Jacimaria Ramos Batista, University of Nevada, Las Vegas

Board 306: Improving Retention Rate and Success in Computer Science Scholars

Dr. Jung Won Hur, Auburn University

Dr. Cassandra Thomas, Tuskegee University

Dr. Li Huang, Tuskegee University

Dr. Xiao Chang, Tuskegee University

Board 307: Improving STEM Student Fundamental Math Skills with Tailored Game-Based Instruction

Monika Neda, University of Nevada, Las Vegas

Dr. Blanca Rincon

Alok Pandey, College of Southern Nevada

Claudia Mora Bornholdt, College of Southern Nevada

Vanessa W. Vongkulluksn Ph.D., University of Nevada, Las Vegas

Rachidi Salako, University of Nevada, Las Vegas

John William Howard, College of Southern Nevada

Daniel Sahl, University of Nevada, Las Vegas

Board 308: Improving Students' Sociotechnical Literacy in Engineering

Dr. Ethan E. Danahy, Tufts University

Dr. Chelsea Joy Andrews, Tufts University

Kaylla Cantilina, University of Michigan

Dr. Jennifer Cross, Tufts Center for Engineering Education and Outreach

Mrs. Ellise M. LaMotte, Tufts University

Board 309: Improving Teachers' Attitudes Toward Sound and Waves Through the Connections with Music

Eunice Chow, WestEd

Linlin Li, WestEd

Nagarajan Akshay, University of California San Diego

Dr. Alec Barron, University of California, San Diego

Susan Yonezawa, University of California, San Diego

Dr. Victor Hugo Minces, University of California, San Diego

Board 310: Improving the Validity of an Instrument to Measure Mental Health Help-Seeking Beliefs for Diverse Institutional Contexts

Dr. Sarah A. Wilson, University of Kentucky

Dr. Joseph H. Hammer

Dr. Jerrod A. Henderson, University of Houston

Dr. Sherri S. Frizell, Prairie View A&M University

Board 311: Increasing Representation in Engineering Through Makerspace Technologies

Shama Rajan Iyer, Marymount University

Eric J. Bubar, Marymount University

Board 312: Increasing Retention for Rural and Underrepresented STEM Students

Dr. Carol S. Gattis, University of Arkansas

Dr. Paul D. Adams, University of Arkansas

Xochitl Delgado Solorzano, University of Arkansas

Jennie S. Popp Ph.D.

Dr. Wenjuo Lo, University of Arkansas

Board 313: Industry 4.0 Engineering Technology Skill Integration into Florida's Technical Workforce Environment

Dr. Marilyn Barger P.E., FLATE (Florida Advanced Technological Education Center of Excellence)

Dr. Ron Eaglin, Daytona State College

Prof. Sam Ajlani

Dr. Mori Toosi

Mr. Sidney E Martin III, Saint Petersburg Junior College

Dr. Richard Gilbert, University of South Florida

Susan Frandsen

Board 314: Initial Explorations to Understand How Our Research Teams Think About Knowledge and Make Research Decisions

Dr. Courtney June Faber, University at Buffalo, The State University of New York

Lorna Treffert, University at Buffalo, The State University of New York

Ms. Isabel Anne Boyd, University of Tennessee, Knoxville

Alexis Gillmore, University of Tennessee at Knoxville

Board 315: Initial Findings of Engineering Faculties' Perceptions of Mastery Assessment in a Project-based Engineering Program

Dr. Sara A. Atwood, Elizabethtown College

Miss Kelsey Scalaro, University of Nevada, Reno

Rebecca Holcombe

Board 316: Innovation Self-Efficacy: Empowering Environmental Engineering Students to Innovate

Dr. Azadeh Bolhari, University of Colorado Boulder

Dr. Angela R. Bielefeldt P.E., University of Colorado Boulder

Board 317: Institutional Practices to Close the Equity Gap

EC Cline, University of Washington, Tacoma

Dr. Heather Dillon, University of Washington

Amanda K. Sesko, University of Washington, Tacoma

Marc Nahmani

Dr. Zaher Kmail, University of Washington, Tacoma

Joyce Dinglasan-Panlilio

Seung-Jin Lee, University of Washington, Tacoma

Emily Cilli-Turner, University of San Diego

Elin A. Björling, University of Washington

Board 318: Instructor Experiences Integrating Facilitated Socially Engaged Engineering Content in their Courses

Claudia G. Cameratti-Baeza, University of Michigan

Dr. Erika A. Mosyjowski, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Board 319: Integrating Computing Throughout K-12 While Bridging the Digital Divide

Dr. Mike Borowczak, University of Central Florida

Dr. Andrea Carneal Burrows Borowczak, University of Central Florida

Board 320: Integrating Playful Learning: A Mixed-Reality Approach to Enhance Computational Thinking in Young Learners

Dr. Jaejin Hwang, Northern Illinois University

Mohammad Faizan Sohail, Northern Illinois University

Board 321: Integrating Sociotechnical Issues in Electrical Engineering Starting with Circuits: Year 1

Dr. Susan M. Lord, University of San Diego

Dr. Cynthia J. Finelli, University of Michigan

Board 322: Introducing Bio Mediated Methodologies in Geotechnical Engineering through Course-based Undergraduate Experiences (CUREs): Mitigating Fugitive Dust Effects by Using Urease in Enzyme Induced Carbonate Precipitation (EICP)

Dr. Anna Marti-Subirana, Phoenix College

Frank S. Marfai, Phoenix College

Elena Ortiz Zuazaga

Robin Cotter, Phoenix College

Board 323: Investigating Engineering Undergraduates' Writing Transfer from Two First-Year Writing-Intensive Sites to Introductory Engineering Labs

Dr. Franny Howes, Oregon Institute of Technology

Wendy Michelle Olson, Washington State University, Vancouver

Dr. Dave Kim, Washington State University, Vancouver

Board 324: Is Adaptive Learning for Pre-Class Preparation Impactful in a Flipped STEM Classroom?

Dr. Renee M. Clark, University of Pittsburgh

Prof. Autar Kaw, University of South Florida

Dr. Andrew Scott, Alabama A&M University

Dr. Saurav Kumar, Arizona State University

Dr. Ali Yalcin, Montana State University, Bozeman

Board 325: IUSE/PFE:RED Innovation: Breaking the Binary

Dr. Lynne A. Slivovsky, California Polytechnic State University, San Luis Obispo

Dr. Lizabeth L. Thompson P.E., California Polytechnic State University, San Luis Obispo

Dr. Jane L. Lehr, California Polytechnic State University, San Luis Obispo

Dr. Bridget Benson, California Polytechnic State University, San Luis Obispo

Dr. Andrew Danowitz, California Polytechnic State University, San Luis Obispo

Dr. John Y. Oliver, California Polytechnic State University, San Luis Obispo

Board 326: K-12 Teachers and Data Science: Learning Interdiscplinary Science Through Research Experiences

Dr. Katherine G. Herbert-Berger, Montclair State University

Dr. Thomas J. Marlowe, Seton Hall University

Dr. Vaibhav Anu, Montclair State University

Stefan A. Robila, Montclair State University

Board 327: Learning Map Framework to Align Instruction and Improve Student Learning in a Physics-Engineering Mechanics Course Sequence

Dr. Courtney D. Giles, University of Vermont

Dr. Larry R. Medsker, University of Vermont

Varuni Anuruddhika Seneviratne, University of Vermont

Dr. Priyantha Wijesinghe, University of Vermont

Board 328: Lessons Learned from First-time, First-year Startup of ASES S-STEM Program

Dr. Dick Apronti, Angelo State University

Dr. William A. Kitch P.E., Angelo State University

Elaine Stribling, Angelo State University

Stephanie Solis, Angelo State University

Board 329: Lessons Learned: NSF REU Site - Growing Entrepreneurially Minded Researchers with New Product Development in Applied Energy

Dr. Lisa Bosman, Purdue University

Dr. Jason Ostanek, Purdue University, West Lafayette

Dr. Walter D. Leon-Salas, Purdue University, West Lafayette

Dr. Jose M. Garcia, Purdue University

Aishani Sakalabhaktula, Purdue University, West Lafayette

Board 330: Looking Back: Alumni Assessment of Activities Offered Through NSF S-STEM Grant

Dr. Varun K. Kasaraneni, Gannon University

Dr. Scott Steinbrink, Gannon University

Dr. Lin Zhao, Gannon University

Dr. Saeed Tiari, Gannon University

Dr. Karinna M. Vernaza, Gannon University

Board 331: Making Space in a Makerspace: Increasing Belonging through Social Engagement

Prof. Jill Davishahl, Western Washington University

Audrey Boklage, University of Texas at Austin

Board 332: Measuring the Impact of a Soft Robotics Curriculum Embedded in Physics Classes on Students' Engineering Knowledge, Identity, and Career Interest

Dr. Holly M. Golecki, University of Illinois Urbana-Champaign

Dr. Karin Jensen, University of Michigan

Karen T. Klebbe, Centennial High School, Champaign IL

Thomas Tran, University of Chicago

Elizabeth Ann McNeela, University of Illinois Urbana-Champaign

Board 333: Metacognitive Intervention to Improve Problem-Solving Skills in First-Year Engineering Students

Dr. Lizzie Santiago, West Virginia University

Daniel Augusto Kestering, West Virginia University

Mrs. Anika Coolbaugh Pirkey, West Virginia University

Dr. D. Jake Follmer, West Virginia University

Board 334: Motivation Loss in Math: Contributing Factors and Consequences

Dr. Chris S. Hulleman, University of Virginia

Emma Huelskoetter

Michelle Francis, University of Virginia

Board 335: Native American Teachers' Pre-post Participation Experiences in Online Coding Curriculum and Professional

Learning

Dr. Bahar Memarian, University of Toronto

Prof. Ashish Amresh, Northern Arizona University

Jeffrey Hovermill, Northern Arizona University

Board 336: NSF CAREER: Engineering Pathways for Appalachian Youth: Design Principles and Long-term Impacts of School-Industry Partnerships

Dr. Hannah E. Glisson, Virginia Polytechnic Institute and State University

Dr. Jacob R. Grohs, Virginia Polytechnic Institute and State University

Board 337: NSF RED: Opening Student Pathways Through the Capability Approach

Dr. Alan Cheville, Bucknell University

Dr. Stewart Thomas, Bucknell University

Dr. Rebecca Thomas, Bucknell University

Dr. Michael S. Thompson, Bucknell University

Board 338: NSF S-STEM: A Community College and University Partnership to Support STEM Student Success; Achievements and Challenges in the First Year of Implementation

Dr. Lynn A. Albers, Hofstra University

Dr. Jessica Santangelo, Hofstra University

Prof. Margaret A. Hunter, Hofstra University

Lisa Filippi, Hofstra University

Dr. John Carmine Vaccaro, Hofstra University

Scott T. Lefurgy, Hofstra University

Jacqueline Lee, Nassau Community College

Rakhi Agarwal, Nassau Community College

Board 339: NSF S-STEM: Educating Engineering Undergraduates to be Intrapreneurs

Dr. Tim Dallas, Texas Tech University

Dr. Heather Greenhalgh-Spencer, Nanyang Technological University

Dr. Kelli M. Frias

Board 340: Nurturing a Community of Practice Approach Toward Equitable and Inclusive STEM Environments in Schools

Hameed Shaheed Abdul-Rashid, University of Illinois Urbana-Champaign

Dr. Lara Hebert, University of Illinois Urbana-Champaign

Dr. Luisa-Maria Rosu, University of Illinois Urbana-Champaign

Dr. Lynford Goddard, University of Illinois at Urbana-Champaign

Board 341: Obstacles in Context: A Multi-Perspective Examination of Obstacles of Revolutionizing Engineering Education in the NSF RED Program

Dr. Eva Andrijcic, Rose-Hulman Institute of Technology

Dr. Sriram Mohan, Rose-Hulman Institute of Technology

Dr. Elizabeth Litzler, University of Washington

Rae Jing Han, University of Washington

Selen Güler, University of Washington

Board 342: On the Development of Spatial Visual Abilities among STEM Students via Interactive Mixed Reality Modules

Ms. Israa Azzam, Purdue University, West Lafayette

Dr. Farid Breidi, Purdue University, West Lafayette

Dr. Faisal Aqlan, University of Louisville

Dr. Jose M. Garcia, Purdue University

Paul Asunda, Purdue University, West Lafayette

Board 343: Outcomes from Metacognition Support in a Fluid Mechanics Flipped Classroom

Dr. Renee M. Clark, University of Pittsburgh

Prof. Autar Kaw, University of South Florida

Dr. Rasim Guldiken, University of South Florida

Board 344: PALAR in Pieces: An Informal Framework to Encourage Multifaceted Engagement

Dr. Jessica Rush Leeker, University of Colorado Boulder

Miss Lyndsay Rose Ruane, University of Colorado Boulder

Marlene Sulema Palomar, University of Colorado Boulder

Hannah Sanders, University of Colorado Boulder

Board 345: Perceptions of Sustainability Among Participants at the NSF REU Site on Sustainable Resilient Transportation Systems

Dr. Haritha Malladi, University of Delaware

Shameeka M. Jelenewicz, University of Delaware

Jovan Tatar, University of Delaware

Board 346: Plants, Power, and People: Using Agrivoltaics Engineering to Create a Network of K-12 Teachers and Students Contributing to Sustainable Energy Transitions

Dr. Michelle Jordan, Arizona State University

Dr. Kelly Simmons-Potter, The University of Arizona

Steven J. Zuiker, Arizona State University

Greg Barron-Gafford, The University of Arizona

Board 347: Positive Predictors of Neurodiverse Students' Sense of Belonging in Engineering

Dr. Maria Chrysochoou, University of Connecticut

Rachael Gabriel, University of Connecticut

Ms. Connie Syharat, University of Connecticut

Dr. Christa L. Taylor, University of Connecticut

Board 348: Poster - Unified Regular Expression Antipattern Language (UREAL)

Joseph Roy Teahen, Michigan Technological University

Daniel Masker, Michigan Technological University

Dr. Leo C. Ureel II, Michigan Technological University

Dr. Laura E. Brown, Michigan Technological University

Dr. Michelle E. Jarvie-Eggart P.E., Michigan Technological University

Dr. Jon Sticklen, Michigan Technological University

Board 349: Predicting Persistence in Engineering via Framing Agency

Dr. Vanessa Svihla, University of New Mexico

Madalyn Wilson-Fetrow, University of New Mexico

Mr. Ruben D. Lopez-Parra, Purdue University, West Lafayette

Yuyu Hsiao, University of New Mexico

Board 350: Preliminary Results from Community Colleges Collaborating in STEM

Dr. Melanie B. Butler, Mount St. Mary's University

Rosina Bolen

Dina Yagodich, Frederick Community College

Aubrey Allen Smith, Montgomery College

Christine McCauslin

Dr. Isaac N Mills, Mount Saint Mary College

Jeffrey Simmons

Kraig E. Sheetz

Board 351: Preparing Early Engineers Through Context, Connections, and Community

Prof. Eric Davishahl, Whatcom Community College

Anna Fay Booker

Ms. Petra Shea McDonnell-Ingoglia, Whatcom Community College

Mr. Pat Burnett, Whatcom Community College

Board 352: Preparing Mechanical Engineering Students for Industry 4.0: an Internet of Things Course

Prof. Hakan Gurocak, Washington State University, Vancouver

Dr. Xinghui Zhao, Washington State University

Dr. Kristin Lesseig

Board 353: Preparing Resilient Individuals to Succeed in Engineering Through NSF S-STEM Program

Mrs. Sarah Cooley Jones, Louisiana State University and A&M College

Dr. Elizabeth Michelle Melvin, Clemson University

Board 354: Project ELEVATE: Promoting Sustained & Equitable Change Among Black, Latinx, and Indigenous Engineering Faculty

Dr. Alaine M. Allen, Carnegie Mellon University

Darlene Saporu, The Johns Hopkins University

Elisa Riedo, New York University

Shelley L. Anna, Carnegie Mellon University

Dr. Linda DeAngelo, University of Pittsburgh

Dr. Andrew Douglas, The Johns Hopkins University

Nathalie Florence Felciai, New York University

Dr. Neetha Khan, Carnegie Mellon University

Dr. Jelena Kovacevic, New York University

Stacey J. Marks, The Johns Hopkins University

Dr. William Harry Sanders, Carnegie Mellon University

Dr. Tuviah "Ed" Schlesinger, The Johns Hopkins University

Yao Wang

Dr. Nelson O. O. Zounlomè, Carnegie Mellon University

Charlie Díaz, University of Pittsburgh

Board 355: Project Update: Academic Success of STEM College Students with ADHD and the Role of Classroom Teaching Practices

Nolgie O. Oquendo-Colón, University of Michigan

Miss Xiaping Li, University of Michigan

Laura Carroll, University of Michigan

Dr. Cynthia J. Finelli, University of Michigan

Board 356: Providing and Implementing Inclusive Practices in Engineering Classrooms: Final Reflections from Three Partner Institutions

Miss Jessica Moriah Vaden, University of Pittsburgh

Dr. April Dukes, University of Pittsburgh

Prof. Kristen Parrish, Arizona State University

Dr. Amy Hermundstad Nave, Colorado School of Mines

Dr. Amy E. Landis

Dr. Melissa M. Bilec, University of Pittsburgh

Amy L. Brooks, University of Pittsburgh

Board 357: Psychosocial and Skills-Based Outcomes of Participating in Vertically Integrated Projects (VIP)

Craig O. Stewart, University of Memphis

Dr. Chrysanthe Preza, The University of Memphis

Dr. Stephanie S. Ivey, The University of Memphis

Board 358: Quantitative Network Analysis for Benchmarking and Improving Makerspaces

Mr. Samuel Enrique Blair, Texas A&M University

Claire Kaat, Georgia Institute of Technology

Pepito Thelly, Texas A&M University

Dr. Julie S Linsey, Georgia Institute of Technology

Dr. Astrid Layton, Texas A&M University

Garrett Hairston, Texas A&M University

Board 359: Reaching DEI targets in STEM: Lessons from a National Science Foundation Research Traineeship (NRT) with Outstanding Demographics

Dr. Eduardo Santillan-Jimenez, University of Kentucky

Carissa B. Schutzman Ph.D., University of Cincinnati

Virginia W. Lacefield, University of Kentucky

Keren Mabisi

Board 360: Reflections from Graduates on the Impact of Engineers Without Borders USA Experiences on Professional Preparation

Lazlo Stepback, Purdue University, West Lafayette

Paul A. Leidig P.E., Purdue University, West Lafayette

Dr. William "Bill" C. Oakes, Purdue University, West Lafayette

Board 361: Reframing Racial Equity Year 2: Examining Script of Whiteness

Dr. Diana A. Chen, University of San Diego

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Prof. Gordon D. Hoople, University of San Diego

Dr. R. Jamaal Downey

Board 362: Reimagining Civil Engineering Graduate Programs: A Research-to-Practice Approach for Shaping Future Transportation Engineers

Mrs. Brittany Lynn Butler-Morton, Rowan University

Darby Rose Riley, Rowan University

Ing. Eduardo Rodriguez Mejia, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

Dr. Yusuf Mehta, Rowan University

Dr. Kaitlin Mallouk, Rowan University

Board 363: Reimagining Essential Computing Content for High School Students

Dr. Julie M. Smith, CSEdResearch.org

Monica McGill, Institute for Advanced Engineering

Jacob Koressel

Bryan Twarek

Board 364: Reinforcing Retention: Engaging with HBCUs to Identify Best Practices for Graduating Low-Income Students

Dr. Brittany Boyd, American Institutes for Research

Dr. Taylor Lightner, QEM Network

Mercy Mugo

Board 365: Relating Sociocultural Identities to What Students Perceive as Valuable to their Professional and Learning Efficacy When Engaging in Virtual Engineering Labs

Dr. Kimberly Cook-Chennault, Rutgers, The State University of New Jersey

Ahmad Farooq, Rutgers, The State University of New Jersey

Board 366: Relationship Between Team-Building Activities and Capstone Team Performance and Student Experience

Hrushikesh Godbole, Rochester Institute of Technology

Dr. Elizabeth A. Debartolo, Rochester Institute of Technology

Shun Takai, Northern Illinois University

Board 367: Repairing the Reputation of the Teaching Profession

Dr. Sabina Anne Schill, Colorado School of Mines

Board 368: Replicating the Community-Engaged Educational Ecosystem – Differences in Outcomes Across Students

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

Dr. Kerry Meyers, University of Notre Dame

Board 369: Research Experiences for Teachers (RET): Engineering for People and the Planet as Inspiration to Teach Integrated STEM

Dr. Katherine C. Chen, Worcester Polytechnic Institute

Donna Taylor, STEM Education Center at WPI

Erin Solovey, Worcester Polytechnic Institute

Board 370: Research Initiation in Engineering Formation: Literature Review and Research Plan for an Engineering Specific Empathy Scale

Dr. Emmabeth Parrish Vaughn, Austin Peay State University

Lily Skau, Austin Peay State University

Dr. Bobette Dawn Bouton, Austin Peay State University

Board 371: Research Initiation: Expanding the Boundaries of Ethical Reasoning and Professional Responsibility in Engineering Education Through Critical Narrative

Dr. Jeff R. Brown, Embry-Riddle Aeronautical University, Daytona Beach

Taylor Joy Mitchell, Embry-Riddle Aeronautical University, Daytona Beach

Chad Rohrbacher, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Leroy Long III, Sinclair Community College

Board 372: Research Initiation: Facilitating Knowledge Transfer within Engineering Curricula

Dr. Alexander John De Rosa, University of Delaware

Dr. Teri Kristine Reed, OU Polytechnic Institute

Samuel Van Horne, University of Delaware

Dr. Angela E. Arndt, Tech Literacy Services

Board 373: Research Initiation: Understanding Interactions Between Affect and Identity in First- and Second-Year Engineering Students

Dr. Emma Treadway, Trinity University

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Board 374: Responsive Support Structures for Marginalized Students in Engineering: Insights from Year 4

Dr. Walter C. Lee, Virginia Polytechnic Institute and State University

Malini Josiam, Virginia Tech Department of Engineering Education

Board 375: REU Participants' Perceptions of Engineering Education Research: Looking for REU Impact

Dr. Oenardi Lawanto, Utah State University

Dr. Wade H. Goodridge, Utah State University

Mr. Rifatul Himel, Utah State University

Zain ul Abideen, Utah State University

Board 376: REU Site: Lowering the Carbon Footprint through Research in Propulsion and Power Generation

Dr. Catherine G. P. Berdanier, Pennsylvania State University

Prof. Jacqueline O'Connor, Pennsylvania State University

Prof. Karen A. Thole, Pennsylvania State University

Board 377: Rising Scholars Graduation Rates and Project Closure Data

Ms. Grace Lynn Baldwin Kan-uge

Ms. Virginia Lynn Booth-Womack, Purdue University, West Lafayette

Dr. Carol S. Stwalley P.E., Purdue University, West Lafayette

Dr. Robert Merton Stwalley III P.E., Purdue University, West Lafayette

Sarah LaRose

Board 378: Scholarships to Accelerate Engineering Leadership and Identity in Graduate Students (ACCEL)

Prof. Tracie Ferreira, University of Massachusetts Dartmouth

Shakhnoza Kayumova, University of Massachusetts Dartmouth

Board 379: SedimentSketch, Teaching Tool for Undergraduate Sedimentology to Provide Equitable and Inclusive Learning for Hispanic Students

Anna Stepanova, Texas A&M University

Dr. Saira Anwar, Texas A&M University

Juan Carlos Laya, Texas A&M University

Carlos Andres Alvarez Zarikian, Texas A&M University

Nancy Elizabeth Martinez, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Board 380: Self-storytelling Interventions to Promote Engineering Student Success

Dr. Krishna Pakala, Boise State University

Eric Jankowski, Boise State University

Dr. Sara Hagenah

Dr. Anne Hamby, Boise State University

Brooke Ward, Boise State University

Board 381: Serving Community Needs while Sharpening Engineering Skills

Urszula Zalewski, Stony Brook University

Dr. Marianna Savoca, Stony Brook University

Dr. Monica Bugallo, Stony Brook University

Board 382: Social and Cultural Activities Integrated into International Research Experiences for an Undergraduates Program in the Czech Republic

Dr. Todd Jeffrey Freeborn, The University of Alabama

Sarah T. Dunlap, The University of Alabama

Dr. Debra Moehle McCallum

Board 383: Socially Responsible Computing: Promoting Latinx Student Retention Via Community Engagement in Early Computer Science Courses

Dr. David M. Krum, California State University, Los Angeles

Dr. Zoe Wood, California Polytechnic State University

Prof. Eun-young Kang, California State University, Los Angeles

Dr. Ayaan M. Kazerouni, California Polytechnic State University

Dr. Jane L. Lehr, California Polytechnic State University

Dr. Sarah Hug, Colorado Evaluation and Research Consulting

Paul Salvador Bernedo Inventado, California State University, Fullerton

Fang Tang

Prof. Ilmi Yoon

Anagha Kulkarni, San Francisco State University

Yu Sun, California State Polytechnic University

Mohsen Beheshti

Aakash Gautam, University of Pittsburgh

Aleata Hubbard Cheuoua

Sahar Hooshmand

Kevin A. Wortman, California State University, Fullerton

Board 384: South Dakota Mines Art + Engineering Engagement in Co-Curricular and Community-Focused Events

Dr. Katrina Jolene Donovan, South Dakota Mines

Dr. Jon J. Kellar, South Dakota School of Mines and Technology

Dr. Stuart D. Kellogg P.E., South Dakota School of Mines and Technology

Dr. Cassandra M. Birrenkott, South Dakota School of Mines and Technology

Dr. Michael West, South Dakota School of Mines and Technology

Matthew Whitehead, South Dakota School of Mines and Technology

Deborah Jean Mitchell, South Dakota School of Mines and Technology

Board 385: Spatial Skills with Augmented Reality: The Journey of Integration

Juan Francisco Granizo, Embry-Riddle Aeronautical University, Daytona Beach

Lorraine M. Acevedo, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Magesh Chandramouli, Purdue University Northwest

Kai Jun Chew, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Lulu Sun, Embry-Riddle Aeronautical University, Daytona Beach

Board 386: S-STEM: Creating Retention and Engagement for Academically Talented Engineers - Lessons Learned from a Four-Year Cohort

Dr. Indira Chatterjee, University of Nevada, Reno

Miss Kelsey Scalaro, University of Nevada, Reno

Dr. Ann-Marie Vollstedt, University of Nevada, Reno

Ivy Chin, University of Nevada, Reno

Joseph Bozsik, University of Nevada, Reno

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

Dr. Adam Kirn, University of Nevada, Reno

Board 387: S-STEM: 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 Polytechnic Institute and State University

Board 388: Student Engagement - IoT-Based Learning Materials and Projects

Dr. Lifford McLauchlan, Texas A&M University, Kingsville

Dr. David Hicks

Dr. Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

Dr. Adetoun Yeaman, Northeastern University

Board 389: Student Success in Engineering Through Customized Support and Internal and External Partnerships

Prof. Vellore S. Gopalaratnam, University of Missouri, Columbia

Dr. Douglas J. Hacker

Dr. Sarah Lynn Orton P.E., University of Missouri, Columbia

Rose M. Marra, University of Missouri, Columbia

Board 390: Student-Led Collaboration for Data-Driven Decisions in Food, Energy, and Water Systems

Dr. Sarah M. Ryan, Iowa State University

Prof. Robert Brown

Dr. Amy Kaleita, Iowa State University

Prof. Sergio Horacio Lence

Cynthia Lidtke, Iowa State University

Cameron Alexander MacKenzie, Iowa State University

Dr. Michelle Lynn Soupir, Iowa State University

Board 391: SUCCESS Scholars: Early Findings from an NSF S-STEM Project

Ms. Krystal Corbett Cruse, Louisiana Tech University

Dr. David Hall, Louisiana Tech University

Dr. Mary E. Caldorera-Moore, Louisiana Tech University

Dr. Mitzi Desselles, Louisiana Tech University

Board 392: Support Teacher Course Development through TeachEngineering Standard

Prof. Weihang Zhu, University of Houston

Roberto G. Dimaliwat

Peter Weber, University of Houston

Ms. Dua Chaker, University of Colorado Boulder

Christy Miller, University of Houston

Board 393: Supporting Hardware Engineering Career Choice in First-Year Engineering Students

Ing. Andrea Ramirez-Salgado, University of Florida

Tanvir Hossain, The University of Kansas

Dr. Swarup Bhunia

Dr. Pavlo Antonenko

Bradford Davey

Board 394: Supporting Secondary Students' Engineering Front-End Design Skills with the Mobile Design Studio

Dr. Corey T. Schimpf, University at Buffalo, The State University of New York

Dr. Shanna R. Daly, University of Michigan

Ms. Leslie Bondaryk, The Concord Consortium

Dr. Jutshi Agarwal, University at Buffalo, The State University of New York

Dr. Carolyn Giroux

Stephanie L. Harmon, PIMSER, Eastern Kentucky University

Enqiao (Annie) Fan, University at Buffalo, The State University of New York

Jacqueline Handley, Purdue University, West Lafayette

Dr. A. Lynn Stephens, The Concord Consortium

Board 395: Supporting STEM Faculty in Adopting and Adapting Writing Pedagogies

Bruce Kovanen, University of Illinois Urbana-Champaign

Prof. Paul Prior

Dr. John R. Gallagher, University of Illinois Urbana-Champaign

Ms. Celia Mathews Elliott, University of Illinois Urbana-Champaign

Prof. John S. Popovics P.E., University of Illinois Urbana-Champaign

Prof. S. Lance Cooper, University of Illinois Urbana-Champaign

Julie L. Zilles, University of Illinois Urbana-Champaign

Board 396: Supporting Students' Success in the Cybersecurity Field: Accomplishments and Lessons Learned by the ACCESS project

Dr. Katerina Goseva-Popstojanova, West Virginia University

Daniel Mackin Freeman, University of Washington

Dr. Robin A.M. Hensel, West Virginia University

Board 397: Sustainable Racial Equity: Creating a New Generation of Engineering Education DEI Leaders

Dr. Homero Murzi, Virginia Polytechnic Institute and State University

Miss Yi Cao, Virginia Polytechnic Institute and State University

Natali Huggins, Virginia Polytechnic Institute and State University

Andres Nieto Leal, Virginia Polytechnic Institute and State University

Board 398: Sustaining and Scaling the Impact of the MIDFIELD Project at the American Society for Engineering Education (Year 2)

Dr. Susan M. Lord, University of San Diego

Dr. Matthew W. Ohland, Purdue University, West Lafayette

Dr. Marisa K. Orr, Clemson University

Dr. Richard A. Layton

Dr. Catherine E. Brawner, Research Triangle Educational Consultants

Mr. Russell Andrew Long, Purdue Engineering Education

Haleh Barmaki Brotherton, Clemson University

Hayaam Osman, Purdue University, West Lafayette

Dr. Joe Roy, American Society for Engineering Education

Board 399: The Affordances of Playful Learning in Ethics Education: Challenging the Status Quo

Dr. Scott Streiner, University of Pittsburgh

Dr. Daniel D. Burkey, University of Connecticut

Dr. Kevin D. Dahm, Rowan University

Dr. Richard Tyler Cimino, New Jersey Institute of Technology

Prof. Michael F. Young, University of Connecticut

Tori Wagner, University of Connecticut

Dr. Jennifer Pascal, University of Connecticut

Board 400: The Evolution of the IMPACTS Mentoring Model: Expanding the Scope to Broaden Success in the Engineering Professoriate

Dr. Sylvia L. Mendez, University of Colorado, Colorado Springs

Dr. Comas Lamar Haynes, Georgia Tech Research Institute

Dr. Billyde Brown

Dr. Jacqueline A. El-Sayed, American Society for Engineering Education

Ray Phillips, American Society for Engineering Education

Jennifer Tygret

Taelor Malcolm, Georgia Institute of Technology

Board 401: The Fidelity of Implementation of a Lesson-Study Framework in Engineering Courses at a Hispanic-Serving Institution

Janeth Martinez-Cortes, The University of Texas at San Antonio

Dr. Mark Appleford, The University of Texas at San Antonio

Dr. Jose Francisco Herbert Acero, The University of Texas at San Antonio

Dr. Harry R. Millwater Jr., The University of Texas at San Antonio

Prof. Heather Shipley, The University of Texas at San Antonio

Board 402: The First Two Years: An Overview of Contributions of the NSF CAREER: Valuing Education and Career Transition Opportunities Raising Student Success Project

Dr. Kristin Kelly Frady, Clemson University

Randi Sims, Clemson University

Board 403: The Influence of Belongingness and Academic Support during a Global Pandemic for Engineering Students through Participation in an S-STEM Intervention Project

Prof. George Kow Quainoo, North Park University

Board 404: The Role of Feedback within Scrum for Engineering Department Operation

Dr. Massood Towhidnejad, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Omar Ochoa, Embry-Riddle Aeronautical University, Daytona Beach

Dr. James J. Pembridge, Embry-Riddle Aeronautical University, Daytona Beach

Board 405: The Stressors for Doctoral Students Questionnaire (SDSQ): Year 3 of an RFE Project on Understanding graduate Engineering Student Well-Being and Retention

Jennifer Cromley, University of Illinois Urbana-Champaign

Dr. Karin Jensen, University of Michigan

Dr. Joseph Francis Mirabelli, University of Michigan

Board 406: The Transformation of a Mathematics Department

Prof. Tuncay Aktosun, The University of Texas at Arlington

Dr. Yolanda Parker, Tarrant County College District

Prof. Jianzhong Su, The University of Texas at Arlington

Board 407: The Use of Home Technology in Preschoolers' Families in Urban Settings: Experiences and Potential Impacts

Dr. Gisele Ragusa, University of Southern California

Board 408: Toward Building a Human-Computer Coding Partnership: Using Machine Learning to Analyze Short-Answer Explanations to Conceptually Challenging Questions

Harpreet Auby, Tufts University

Namrata Shivagunde, University of Massachusetts, Lowell

Anna Rumshisky, University of Massachusetts, Lowell

Dr. Milo Koretsky, Tufts University

Board 409: Toward Understanding Engineering Transfer Students' Transitions from Community Colleges to 4-year Institutions

Prof. Karcher Morris, University of California, San Diego

Dr. Jaclyn Duerr, University of California, San Diego

Dr. Saharnaz Baghdadchi, University of California, San Diego

Prof. Bill Lin, University of California, San Diego

Board 410: Tracing the Evolution of NSF REU Research Priorities and Trends

Dr. Yanxia Jia, Arcadia University

Tiantian Wang, The University of Texas at San Antonio

Chaomei Chen, Drexel University

Yu-Fang Jin, The University of Texas at San Antonio

Board 411: Training Socially Responsible and Engaged Data Scientists: Lessons from Four Student Cohorts

Dr. Valentina Kuskova, University of Notre Dame

Prof. Nitesh Chawla

Sugana Chawla, University of Notre Dame

Ronald Metoyer

Dr. Danielle Wood, University of Notre Dame

Ann-Marie Conrado, University of Notre Dame

Board 412: Undergraduate Research and Innovation Experience in Cancer Diagnosis and Therapeutic Intervention

Dr. Nellone Eze Reid, New Jersey Institute of Technology

Dr. Sagnik Basuray, New Jersey Institute of Technology

Board 413: Undergraduate Robotics Education with General Instructors Using a Student-Centered Personalized Learning Framework

Dr. Rui Wu, East Carolina University

Dr. Sergiu Dascalu, University of Nevada, Reno

Dr. Zhen Zhu, East Carolina University

Dr. David Feil-Seifer

Dr. Marjorie Campo Ringler, East Carolina University

Dr. Venkat N Gudivada, East Carolina University

Bryan C. Hutchins

Laura Rosof

Ponkoj Chandra Shill, University of Nevada, Reno

Hossein Jamali, University of Nevada, Reno

Frederick C. Harris Jr., University of Nevada, Reno

Board 414: Understanding and Scaffolding the Productive Beginnings of Engineering Judgment in Undergraduate Students

Melissa Joan Caserto, University at Buffalo, The State University of New York

Dr. Jessica E. S. Swenson, University at Buffalo, The State University of New York

Dr. Aaron W. Johnson, University of Michigan

Board 415: Understanding Magnetism Concepts Through Augmented Reality: A Qualitative Analysis

Michele W. McColgan, Siena College

Dr. Jason Morphew, Purdue University, West Lafayette

Dr. George E. Hassel, Siena College

Junior Anthony Bennett, Purdue University, West Lafayette

Dr. Megan Clark Kelly, Siena College

Board 416: Understanding the Experiences of Graduate Program Directors: The Intersection of Roles, Responsibilities, and Care in Engineering Graduate Education

Dr. Alexandra Coso Strong, Florida International University

Dr. Adam Kirn, University of Nevada, Reno

Kaitlyn Anne Thomas, University of Nevada, Reno

Mais Kayyali, Florida International University

Dr. Kelsey Scalaro, University of Nevada, Reno

Board 417: Understanding the Implementation of the STEM-ID Curricula in Middle School Engineering Classrooms (Fundamental)

Dr. Jessica D. Gale, Georgia Institute of Technology

Dr. Meltem Alemdar, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Board 418: Understanding why some African American Students Chose Engineering Technology over Engineering and the Implications of this Choice

Dr. Lesley M. Berhan, The University of Toledo

Dr. Revathy Kumar

Dr. Anne M. Lucietto, Purdue University, West Lafayette

Board 419: Untangling 'Neurodiversity' and 'Neurodivergence': Implications for Research Practice in Engineering and STEM Contexts

Ms. Connie Syharat, University of Connecticut

Dr. Alexandra Hain, University of Connecticut

Prof. Arash Esmaili Zaghi P.E., University of Connecticut

Board 420: Urban STEM Collaboratory: 5 Years of Lessons Learned

Dr. Stephanie S. Ivey, The University of Memphis

Craig O. Stewart, University of Memphis

Dr. Aaron Robinson, The University of Memphis

Stefano Alessandro Blasoni, The University of Memphis

Prof. Maryam Darbeheshti, University of Colorado Denver

Michael Jacobson, Pennsylvania State University

William Taylor Schupbach

Dr. Tom Altman, University of Colorado Denver

Dr. Karen D. Alfrey, Indiana University-Purdue University Indianapolis

Dr. Mengyuan (Alice) Zhao, Indiana University-Purdue University Indianapolis

Tony Chase, Indiana University-Purdue University Indianapolis

Board 421: Using Interdisciplinary Engineering Design Challenges Coupled with Career Exploration to Develop an Engineering Identity in Low-Income Students

Dr. Ricky T. Castles, East Carolina University

Dr. Chris Venters, East Carolina University

Board 422: What Does It Take to Implement a Semiconductor Curriculum in High School? True Challenges and The Teachers' Perspectives

Andrew J. Ash, Oklahoma State University

James E. Stine, Oklahoma State University

Erin Dyke, Oklahoma State University

John Hu, Oklahoma State University

Board 423: What Drives You? Exploring the Motivations and Goals of Low-Income Engineering Transfer Students for Pursuing Engineering

Anna-Lena Dicke, University of California, Irvine

Athena Wong, University of California, Irvine

Dr. David A. Copp, University of California, Irvine

Analia E. Rao, University of California, Irvine

Prof. Lorenzo Valdevit

Board 424: What Works: Intra-Institutional Partnerships and Processes for S-STEM Recruitment

Dr. Tamara Floyd Smith, West Virginia University Institute of Technology

Dr. Kenan Hatipoglu, West Virginia University Institute of Technology

Kelly J. Cunningham

Board 425: Work in Progress: Initiating a Research Experience for Teachers Centered on Manufacturing

Prof. Marian Kennedy, Clemson University

Dr. Kristin Kelly Frady, Clemson University

Board 426: Work in Progress: Real-Time Ecological Momentary Assessment of Students' Emotional State in Statics

Dr. Diana Arboleda, University of Miami

Dr. James Giancaspro P.E., University of Miami

Aaron Heller, University of Miami

Board 427: Work in Progress: ADVANCE Strategic Partnership for Alignment of Community Engagement in STEM (SPACES)

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

Prof. Lupita D. Montoya, University of Colorado, Boulder

Andrea Ferro, Clarkson University

Prof. Cesunica E. Ivey, University of California, Berkeley

Dr. Shakira Renee Hobbs, University of California Irvine

Dr. Maya A. Trotz, University of South Florida

Dr. Cliff I. Davidson, Syracuse University

Dr. Susan J. Masten P.E., Michigan State University

Dr. Sheryl H. Ehrman, San Jose State University

Chang-yu Wu, University of Florida

Board 428: Work in Progress: An Open Educational Resource to Improve Architectural Engineering Students Conceptual Knowledge When Writing-to-Learn: Investigation 1

Dr. Ryan Solnosky P.E., Pennsylvania State University

Roy B. Clariana, Pennsylvania State University

Board 429: Work in Progress: Capacity-Building for Change Through Faculty Communities Exploring Data and Sharing Their Stories

Dr. Amy B. Chan Hilton, University of Southern Indiana

Shelly B. Blunt, University of Southern Indiana

Board 430: Wok in Progress: Enhancing the Use of Institutional Data in S-STEM Proposals: Capacity-Building Workshops

Dr. Amy B. Chan Hilton, University of Southern Indiana

Board 431: Work in Progress: Fostering Team Science in an Engineering Education Research Team

Dr. Rodolfo Valdes-Vasquez, Colorado State University

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

Board 432: Work in Progress: Immersive, Hands-On, and Interactive Quantum Information Science and Technology: Empowering Undergraduate Students in Quantum Computing

Mr. Syed Hassan Tanvir, University of Florida

Gloria J. Kim, University of Florida

Jing Guo, University of Florida

Philip Feng, University of Florida

Wanli Xing, University of Florida

Board 433: Work in Progress: Improving Students' Decision-Making Behavior in Choosing an Engineering Pathway

Ashley Y. Tran, University of Illinois Urbana-Champaign

Debapratim Ghosh, University of Illinois Urbana-Champaign

Samuel Harford, The University of Illinois at Chicago

Prof. Houshang Darabi, The University of Illinois at Chicago

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Board 434: Work in Progress: On the Use of Low-Cost Environmental Monitors in rural K-12 Outreach to Enhance Engineering Identity Development

Dr. Daniel Knight, University of Colorado Boulder

Dr. Angela R. Bielefeldt P.E., University of Colorado Boulder

Dr. Joseph Polman Polman

Prof. Michael Hannigan

Board 435: Work in Progress: Preliminary Findings from NSF Award No. 2205033 - Research Initiation: Mapping Identity Development in Doctoral Engineering Students

Diego Alejandro Polanco-Lahoz, Texas Tech University

Dr. Jennifer A. Cross, Texas Tech University

Kelli Cargile Cook, Texas Tech University

Dr. Mario G. Beruvides P.E., Texas Tech University

Jason Tham, Texas Tech University

Md Rashedul Hasan, Texas Tech University

Board 436: Work in Progress: Testing and Examining the Impact of a Set of STEM-Oriented Creative Video Projects on STEM Students' Psychosocial, Persistence, and Scholastic Outcomes

Dr. Marcus Antonius Ynalvez, Texas A&M International University

Claudia San Miguel, Texas A&M International University

Dr. Ruby Ynalvez, Texas A&M International University

Dr. Deepak Ganta, Texas A&M International University

Dr. Runchang Lin, Texas A&M International University

Marcela Moran, Texas A&M International University

Mrs. Leonela Preciado, Texas A&M International University

Mayra Alejandra Garza, Texas A&M International University

Mr. Rene Rangel Jr., Texas A&M International University

Veronica Judith Prado, Texas A&M International University

Board 437: Work in Progress: Transforming STEM Undergraduate Education Through a Hispanic Student Success Servingness Framework

Dr. Katherine R. McCance, The University of Texas at San Antonio

Dr. Vanessa Ann Sansone, The University of Texas at San Antonio

Dr. Mark Appleford, The University of Texas at San Antonio

Dr. Arturo Montoya, The University of Texas at San Antonio

Dr. Harry R. Millwater Jr., The University of Texas at San Antonio

Dr. Jose Francisco Herbert Acero, The University of Texas at San Antonio

Prof. Heather Shipley, The University of Texas at San Antonio

Board 438: Year Two of Developing a New Dataset for Analyzing Engineering Curricula

Dr. David Reeping, University of Cincinnati

Dr. Kenneth Reid, University of Indianapolis

Dr. Matthew W. Ohland, Purdue University, West Lafayette

Nahal Rashedi, University of Cincinnati

Mr. Hossein EbrahimNejad, Drexel University

W301A - Generations: Matching Aerospace Needs with Today's Workforce

11:30 A.M. - 1:00 P.M., E147, OREGON CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Mary Johnson, Purdue University at West Lafayette (PPI)

Speakers: Dr. Michael C. Hatfield, University of Alaska Fairbanks; Dr. Kristi J. Shryock, Texas A&M University; Ms. Karen Dinora Martinez Soto; Dr. Denise Thorsen, University of Alaska Fairbanks

This session will discuss ways to meet the needs of the aerospace industry and to support the needs of our rising workforce in industry and academia.

W303 - Strategies and/or Approaches to Engage Students in Agricultural, Biological, or Similarly Named Programs

11:30 A.M. - 1:00 P.M., B115, OREGON CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Moderator: Lucie Guertault, North Carolina State University at Raleigh

This session focuses on pedagogy designed to increase student engagement and interest in engineering and technology topics in agriculture, biosystems, and similar application areas. The goals are to introduce participants to approaches that make learning technology content more meaningful to students considering an engineering major, and to introduce students to the breadth of agricultural, environmental, ecological, and biological/bioprocess engineering.

Inclusive Experiential Learning for STEM Students in Sustainable Robotic Agriculture

Dr. Madhumi Mitra, University of Maryland, Eastern Shore

Dr. Abhijit Nagchaudhuri, University of Maryland, Eastern Shore

Mr. Jesu Raj Pandya, University of Maryland, Eastern Shore

Arya Sankar Das, University of Maryland, Baltimore County

WIP: Impact of an Authentic Introductory Computer Programming Course on New BAE Undergraduate Students' Learning Motivation and Interest in the Discipline

Dr. Lucie Guertault, North Carolina State University

Work in Progress: Grace Platform: Enhancing Pedagogy with Gamified AR and VR in Agriculture Education

Ms. Maryam Bigonah, Auburn University

Mrs. Fatemeh Jamshidi, Auburn University

Aparana Pant, Auburn University

Dr. Daniela Marghitu, Auburn University

Update on Directed STEM Lessons for Developing Student Interest in Agriculture: A Work in Progress

Dr. Robert Merton Stwalley III P.E., Purdue University

Dr. Roger L. Tormoehlen, Purdue University

W304 - Biomedical Engineering Division (BED) Technical Session 3

11:30 A.M. - 1:00 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Kavon Karrobi, Boston University; Michael Browne, The University of Illinois at Chicago

BME Pedagogy and Teaching Strategies

Bridging the Great Divide: A Strategy for How Online Graduate Students Can Participate and Enhance the Education of Undergraduate Students

Mrs. Mercedes Terry, University of North Dakota

Mr. Enrique Alvarez Vazquez, North Dakota State University

Dr. Dan Ewert, University of North Dakota

Ryan Striker, University of North Dakota

Integrating Active Learning, Case Studies, Cytotoxicity Testing, and Ethical Considerations in Biomaterials Education: A Novel Approach

Dr. Shivaun D. Archer, Cornell University

Dr. Mridusmita Saikia, Cornell University

Implementation and Evaluation of Experiential Learning to Reinforce Research & Development Skills in a Biopharmaceutical Process Development Course

Dr. Deborah Sweet Goldberg, University of Maryland, College Park

Measuring the Pedagogical Impact on Undergraduate Students through Frequent, Low-Stakes Pre- and Post-Lecture Self-Assessments

Dr. Reem Khojah, University of California, San Diego

Josephine Relaford-Doyle, University of California, San Diego

A Collaborative Effort to Convert MATLAB-based Curriculum to Python in Undergraduate Biomedical Engineering Education

Dr. Elizabeth Kathleen Bucholz, Duke University

David Ward, Duke University

Effectiveness of Inclusive, Reflective Teaching Practices on Problem Solving Proficiency

Dr. Casey Jane Ankeny, Northwestern University

Prof. David P. O'Neill, Northwestern University

Dr. Ken Gentry, Northwestern University

Philippa Eshun, Northwestern University

W305A - Teaching Tools

Lightning Roundtable

11:30 A.M. - 1:00 P.M., PORTLAND BALLROOM C, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderator: Joanne Beckwith, Carnegie Mellon University

Presenters will be given 2 minutes to summarize their teaching tool. After the presentations are completed, presenters will be assigned a table. Attendees will circulate through the tables every 10 minutes to get to learn about the teaching tools.

W305B - Innovations in Experiments and Modeling

11:30 A.M. - 1:00 P.M., D135, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Mechteld Hillsley, Pennsylvania State University; Carlos Landaverde Alvarado, University of Texas at Austin

Python-based Demonstration for Designing Distillation Columns for Ternary Mixtures

Dr. John Rajadayakaran Edison, The Johns Hopkins University

Kellen Roddy, The Johns Hopkins University

Man Kit Ao, The Johns Hopkins University

Panwa Promtep, The Johns Hopkins University

A Novel Laboratory-Scale Pilot Plant Study

Dr. Robert P. Hesketh, Rowan University

Mr. Barnabas Gao, Rowan University

Dr. Kirti M. Yenkie, Rowan University

Miss Swapana Subbarao Jerpoth, Rowan University

Mr. David Anthony Theuma, Rowan University

Sean Curtis, Rowan University

Michael Fracchiolla, Rowan University

Dr. C. Stewart Slater, Rowan University

Dr. Mariano Javier Savelski, Rowan University

Steven Roth, Rowan University

Emma Marie Padros, Rowan University

Climate Change and Kinetics in an Undergraduate Laboratory: Injection and Tracking of CO2 in a 7 Gallon Terrarium

Dr. Clint Guymon, Brigham Young University

Joseph R. Tuft

Simulation Analysis of Air Temperature Effects on Propylene Storage Tank Leaks

Dr. Mahmud Hasan, University of Houston

W306 - Civil Engineering Division (CIVIL) Technical Session - Professional Practice 2

11:30 A.M. - 1:00 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Joel Sloan, U.S. Air Force Academy; Andrea Welker, The College of New Jersey

Application of Employee Appraisal Forms to Facilitate Assessment of Student Outcomes in the Engineering Capstone Course (Work-In-Progress)

Major Brett Rocha, United States Military Academy

Mr. Scott M. Katalenich P.E., United States Military Academy

By the Book: Is Induced Travel Missing from Transportation Engineering Textbooks?

Prof. Kelcie Mechelle Ralph, Rutgers, The State University of New Jersey

Ellen Oettinger White, State University of New York

Leveraging the ASCE ExCEEd Model to Design a Course on Sustainable Infrastructure Development

Capt. Matthew Glavin, United States Military Academy

Capt. Robert Hume, United States Military Academy

Lt. Col. Scott M. Katalenich, United States Military Academy

William Graves, United States Military Academy

Prevention Through Design (PtD): Addressing Engineers' Knowledge Gaps

Dr. Ahmed Jalil Al-Bayati, Lawrence Technological University

Dr. Elin Jensen, Lawrence Technological University

Karim Bazzi

Re-designing a Technical Communications Course to Address Scaling Challenges

Dr. Jennifer Retherford, University of Tennessee at Knoxville

Dr. Sarah Mobley, University of Tennessee at Knoxville

W308 - Computer-Supported Pedagogy and Assessment

11:30 A.M. - 1:00 P.M., B117, OREGON CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Makayla Moster, Clemson University

The papers in this session focus on computer-based and computer-supported assessment, including auto-grading and video assessments.

Assessing the Impact of Open-Resource Access on Student Performance in Computer-Based Examinations

Dr. Zulal Sevkli, Miami University

Automated Grading with Rapid Feedback for SOLIDWORKS Files

Dr. Keith Hekman, California Baptist University

Improving Efficiency and Consistency of Student Learning Assessments: A New Framework Using LaTeX

Dr. Ira Harkness, University of Florida

Prof. Justin Watson

Enhancing Lecture Material with Conceptual Videos: A Supplementary Learning Experience

Mr. Thomas Rossi, University of New Haven

Dr. Pulin Agrawal, Pennsylvania State University

Negein Immen, Pennsylvania State University

Angelina Krystal Valentin, Pennsylvania State University

Neha Sagi, Pennsylvania State University

Domenico Alford-Egizio, Pennsylvania State University

Giving Voice to Problem-Solving: Hearing Students' Techniques in Video Reflections

Dr. Tammy VanDeGrift, University of Portland

Reflections on 10 years of Operating a Computer-based Testing Facility: Lessons Learned, Best Practices

Dr. Jim Sosnowski, University of Illinois Urbana-Champaign

Dr. Julie M. Baker, University of Illinois Urbana-Champaign

Olivia Arnold, University of Illinois Urbana-Champaign

Prof. Mariana Silva, University of Illinois Urbana-Champaign

David Mussulman, University of Illinois Urbana-Champaign

Prof. Craig Zilles, University of Illinois Urbana-Champaign

Prof. Matthew West, University of Illinois Urbana-Champaign

W309 - Sustainability and Student Health in Construction Education

11:30 A.M. - 1:00 P.M., B119, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: John Tingerthal, Northern Arizona University; Rachel Mosier, Oklahoma State University

Integrating Sustainability KPIs in Construction Education for a More Responsible and Equitable Built Environment

Ms. Claudia Calle Müller, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Enhancing Campus Sustainability: A LEED-Based Case Study

Dr. Boshra Karimi, Northern Kentucky University

Assessing LEED Credit Weighting: A Dual Perspective on Sustainable Construction and Educational Implications

Dr. Mohsen Goodarzi, Ball State University

Dr. Mohsen Garshasby, Mississippi State University

Assessing Stress Levels and Stressors Among Architecture, Engineering, and Construction (AEC) Students: Underpinnings for Mental Health Curricula Development

Sepehr Khorshid, The University of Alabama

Raissa Seichi Marchiori, The University of Alabama

Dr. Siyuan Song, The University of Alabama

Exploring Sleep Health in Construction Students: A Pilot Study

Dr. Saeed Rokooei, Mississippi State University

Dr. Raheleh Miralami, Mississippi State University

Dr. George D. Ford, Mississippi State University

W313 - Design in Engineering Education Division (DEED) - Empathy, Psychological Safety, and Leadership in Engineering Design

11:30 A.M. - 1:00 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Ben Tanay, Purdue Engineering Education

Instructor and Graduate Student Perspectives: Is Empathy a Needed Design Skill for Future Engineers?

Dr. Jennifer Howcroft, University of Waterloo

Dr. Kate Mercer, University of Waterloo

An Investigation of Psychological Safety in Student-Led Undergraduate Engineering Design Projects through Student Interviews

Tara Esfahani, University of California, Irvine

Isra Malabeh, University of California, Irvine

Dr. Mark E. Walter, University of California, Irvine

Dr. David A. Copp, University of California, Irvine

Exploring an Intervention to Increase Psychological Safety on Student Engineering Design Teams

Jenn Campbell, University of Arkansas

Heather Maiirhe Caruso, University of California, Los Angeles

Leidy Klotz

Work In Progress: But Wait! Design and Leadership Competencies Are More Similar Than You Think!

Dr. Rebecca Komarek, University of Colorado Boulder

Dr. Daria A. Kotys-Schwartz, University of Colorado Boulder

Dr. Daniel Knight, University of Colorado Boulder

W314A - Educational Research and Methods Division (ERM) Technical Session 19

11:30 A.M. - 1:00 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Timothy James, Purdue Engineering Education

Generative Artificial Intelligence in Undergraduate Engineering: A Systematic Literature Review

Mr. Hudson James Harris, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Using Generative AI for a Graduate Level Capstone Course Design—a Case Study

Dr. Wei Lu, Texas A&M University

Dr. Behbood "Ben" Zoghi P.E., Texas A&M University

WIP: Exploring the Effects of a Purpose-in-Life Reflection Activity in an Introductory Artificial Intelligence Course

Trini Balart, Texas A&M University

Prof. Catalina Cortazar, Pontificia Universidad Católica de Chile

Dr. Jorge Baier, Pontificia Universidad Católica de Chile

Dr. Kristi J. Shryock, Texas A&M University

WIP: Traditional Engineering Assessments Challenged by ChatGPT: An Evaluation of its Performance on a Fundamental Competencies Exam

Trini Balart, Pontificia Universidad Católica de Chile

Dr. Jorge Baier, Pontificia Universidad Católica de Chile

Martín Eduardo Castillo, Pontificia Universidad Católica de Chile

Work in Progress: Navigating Undergraduates' Perspectives on Macroethical Dilemmas in Aerospace Engineering

Ms. Elizabeth Ann Strehl, University of Michigan

Sabrina Olson, University of Michigan

Dr. Corin L. Bowen, California State University, Los Angeles

Dr. Aaron W. Johnson, University of Michigan

Work-In-Progress: Faculty and Student Perceptions of the Integration of Arts-Related Material into Engineering Courses and Curricula

Ms. Shawna Dory, Pennsylvania State University

Dr. Sarah E. Zappe, Pennsylvania State University

Applied Ethics via Encouraging Intuitive Reflection and Deliberate Discourse

Lucas J. Wiese, Purdue University

Dr. Alejandra J. Magana, Purdue University

W314B - Educational Research and Methods Division (ERM) Technical Session 20

11:30 A.M. - 1:00 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Aaron Johnson, University of Michigan

Engineering Education Graduate Student Researchers' Development as Scholars through Designing Culturally Sustaining Engineering Education Workshops with K-12 Educators and Students (Work in Progress)

Lise Clara Mabour, Tufts University

Geling Xu, Tufts University

Mr. Brian Gravel, Tufts University

Scoping Review of Instruments for Measuring Doctoral Students' Mentoring Relationships with Advisors or Mentors

Terkuma Stanley Asongo, University of Massachusetts, Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Storytelling Approaches for Elevating Student Voices in Research and Dissemination

Dorothy Decontee Gocol, Florida International University

Dr. Helen Urpi Wagner-Coello, Florida International University

Dr. Monica E. Cardella, Florida International University

Work in Progress: Design and Preliminary Results of a Survey to Explore Relationships Between Faculty Mentoring, Engineering Doctoral Student Psychological Safety, and Work Outcomes

Dorian Bobbett, University of Michigan

Jeanne Sanders, University of Michigan

Larkin Martini, Virginia Polytechnic Institute and State University

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Dr. Karin Jensen, University of Michigan

Work in Progress: Motivational Differences Between Civil and Environmental Engineering Doctoral Students in the Pre-writing and Writing Phases

Ing. Eduardo Rodriguez Mejia, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

Work in Progress: Project Teams' Structure Impacting Students' Professional Skill Development

Emily Buten, University of Michigan

Jack Boomer Perry, University of Michigan

Cindy Wheaton, University of Michigan

Dr. Aaron W. Johnson, University of Michigan

Work-in-Progress: Describing the Epistemic Culture of our Research Teams from Ethnographic Observations

Dr. Courtney June Faber, University at Buffalo, The State University of New York

Lorna Treffert, University at Buffalo, The State University of New York

Ms. Isabel Anne Boyd, University of Tennessee, Knoxville

W314C - Educational Research and Methods Division (ERM) Technical Session 21

11:30 A.M. - 1:00 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Shannon Clancy, University of Michigan

Influence of Interpersonal Interactions on Student Engagement: Online Undergraduate Engineering Students' Perspectives

Kaden Holt, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Intercultural Attitudes and Behaviors as Exhibited by Cybersecurity Students

Dr. Aparajita Jaiswal, Purdue University

Dr. Paul J. Thomas, Purdue University

Owura Kuffuor, Purdue University

Investigating Perceptions that Predict Mental Health Related Help-Seeking in First-Year Engineering Students

Dr. Sarah A. Wilson, University of Kentucky

Ava Kay Huth, Iowa State University of Science and Technology

Sara Xochilt Lamer, University of Kentucky

Dr. Joseph H. Hammer

Matthew Whitwer, University of Kentucky

Lessons Learned from Generating, Consolidating, and Analyzing Large Scale, Longitudinal Social Network Data

Dr. Jack Elliott, Iron Range Engineering, Minnesota State University, Mankato

Dr. Angela Minichiello, Utah State University

Dr. Joshua Marquit, Pennsylvania State University, Brandywine

Undergraduate Engineering Students' Experiences of Faculty Recognition

Dr. Kelsey Scalaro, University of Nevada, Reno

Dr. Indira Chatterjee, University of Nevada, Reno

Dr. Ann-Marie Vollstedt, University of Nevada, Reno

Dr. Adam Kirn, University of Nevada, Reno

Examining the Relationship between Local Sense of Belonging and Students' Development of Socio-Academic Relationships in Introductory STEM Classes

Dr. Trevion S. Henderson, Tufts University

Collette Patricia Higgins, James Madison University

W315 - Community Building and Student Engagement

11:30 A.M. - 1:00 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Olga Mironenko, University of Illinois at

Urbana - Champaign; Diana de la Rosa-Pohl, University of Houston - COE

This session examines the pivotal role of community building and student engagement in enhancing educational outcomes within electrical and computer engineering programs.

Creating Learning Communities for Student Success in Gateway Discrete Linear Systems

Dr. Cheryl B. Schrader, Wright State University

Classicle Sticks: An Activity to Improve Student Engagement

Dr. C. Richard Compeau Jr., Texas State University

Dr. Kimberly Grau Talley P.E., Texas State University

Dr. Austin Talley, Texas State University

Tracking and Predicting Student Performance Across Different Semesters with Matched Action-State Orientation Surveys and Interventions

Prof. Ismail Uysal, University of South Florida

Mehmet Bugrahan Ayanoglu, University of South Florida

Dr. Rania Sherif Elashmawy, University of South Florida

Rifatul Islam, University of South Florida

Paul E. Spector, University of South Florida

Dr. Chris S. Ferekides, University of South Florida

Introduction to Electrical Engineering: Empowering and Motivating Students through Laboratory-Focused Teaching

Dr. Ilya Mikhelson, Northwestern University

Investigating the Impact of Team Composition, Self-Efficacy, and Test Anxiety on Student Performance and Perception of Collaborative Learning: A Hierarchical Linear Modeling Approach

Tridib Kumar Saha, Purdue University

Dr. Jason Morphew, Purdue University

W316 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 3

11:30 A.M. - 1:00 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Yang Shao, University of Illinois at Urbana - Champaign; Shruti Singh, Seattle University

Aligning Engineering Curricula with Energy Industry Demands—The 3P Model of Policy, Pedagogy, and Practice

Mr. Hua Chai, University of New South Wales

Prof. Jayashri Ravishankar, University of New South Wales

Dr. Inmaculada Tomeo-Reyes, University of New South Wales

Sustainable Energy Design through International Student Teamwork

Dr. Robert J. Kerestes, University of Pittsburgh

Dr. Renee M. Clark, University of Pittsburgh

Work-in-Progress: Visualizing Bubble Formation on Pt2Al3 Surface during Dibenzyltoluene (DBT) Dehydrogenation

Il Yoon, University of North Georgia

Chandler Levi Davis, University of North Georgia

W3195 - DSA Technical Session 7

11:30 A.M. - 1:00 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderators: Sreenath Chalil Madathil, State University of New York at Binghamton; Xuemin Jin, Northeastern University

Utilizing a Machine Learning Approach

An Interactive Platform for Team-based Learning Using Machine Learning Approach

Tony Maricic, New York University Tandon School of Engineering

Nisha Ramanna, New York University Tandon School of Engineering

Alison Reed, New York University Tandon School of Engineering

Dr. Rui Li, New York University

Jack Yang, New York University Tandon School of Engineering

From Manual Coding to Machine Understanding: Students' Feedback Analysis

Mr. Abdulrahman Alsharif, Virginia Polytechnic Institute and State University

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Using Machine Learning to Analyze Short-Answer Responses to Conceptually Challenging Chemical Engineering Thermodynamics Questions

Harpreet Auby, Tufts University

Namrata Shivagunde, University of Massachusetts, Lowell

Anna Rumshisky, University of Massachusetts, Lowell

Dr. Milo Koretsky, Tufts University

Versatile Recognition of Graphene Layers from Optical Images Under Controlled Illumination Through Green-Channel Correlation Method

Prof. Saquib Ahmed, The State University of New York Buffalo State University

Paradigm Shift? Preliminary Findings of Engineering Faculty Members' Mental Models of Assessment in the Era of Generative AI

Ms. Isil Anakok, Virginia Polytechnic Institute and State University

Kai Jun Chew, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

W320 - Virtues in Engineering Ethics Education

11:30 A.M. - 1:00 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderator: Chika Winnifred Agha, Colorado State University

Virtues in Engineering Ethics Education

Choreographing Virtue: The Role of Situatedness and Layering in Building Moral Muscle Memory in Engineering Ethics Education

Dr. Sergio Guillen Grillo, University of Virginia

Dr. Bryn Elizabeth Seabrook, University of Virginia

Evidence-Based Practice: Looking Good When It Matters: How Engineering Students Regard the Virtue Ethics Framework

Dr. Natalie C.T. Van Tyne, Virginia Polytechnic Institute and State University

How Good is Our Undergraduate Engineering Ethics Training? A Comparative Analysis of Engineering Ethics Textbooks

Chloe Adams, Wake Forest University

Dr. Olga Pierrakos, Wake Forest University and National Science Foundation

Lasya Agasthya

The Virtues of Engineering Practice: An Investigation of Professional Codes of Ethics in Engineering

Elizabeth M. Boatman

Dr. Kyle Luthy, Wake Forest University

Dr. Christian B. Miller, Wake Forest University

Dr. Olga Pierrakos, Wake Forest University

W321 - Engineering Libraries Division (ELD) Technical Session 4

11:30 A.M. - 1:00 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Equipping First-Year Engineering Students with Artificial Intelligence Literacy (AI-L): Implementation, Assessment, and Impact

Dr. Uri Feldman, Wentworth Institute of Technology

Miss Callie Cherry, Wentworth Institute of Technology

Exploring Generative AI and Natural Language Processing to Develop Search Strategies for Systematic Reviews

Sarah G. Park, University of Illinois at Urbana - Champaign

Monica Carroll, University of Illinois at Urbana - Champaign

Lucy Marie Alice Esteve, Duke University

Karnika Singh, Duke University

Uncovering Information Behavior: AI-Assisted Citation Analysis of Mechanical Engineering Technology Senior Capstone Reports

Mark Chalmers, University of Cincinnati

Aja Rachel Bettencourt-Mccarthy, University of Cincinnati

Work in Progress: Exploring the impact of Generative AI on Information Seeking Behavior of Engineering Students

Prof. Matthew Frenkel, New York University

Hebah Emara, New York University

Amanda He, New York University

Lindsay Anderberg, New York University

Mr. Samuel R. Putnam, New York University

W323 - Engineering Technology Division Curriculum Development

11:30 A.M. - 1:00 P.M., DESHAUTES BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderators: Troy Tonner, Purdue University Fort Wayne; Rungun Nathan, Pennsylvania State University, Berks Campus

An Exploratory Analysis of an Electrical Engineering Technology Curriculum Using Bernstein's Instructional Discourse

Dr. Ashish Agrawal, Rochester Institute of Technology

A Novel Curriculum for an Engineering Degree in STEM Education and Teacher Preparation

Dr. Mohamed Gharib, Texas A&M University

Dr. Michael A. de Miranda, Texas A&M University

Considering Professional Diversity as a Factor in a Consensus Building Method for Expert Crowdsourcing of Curriculum Topics

Mr. Brian Khoa Ngac, George Mason University

Dr. Mihai Boicu, George Mason University

Education, Experience, and Certification Through Micro-Credential Program in RF Engineering for Engineering Technology Students

Dr. Doug Kim, State University of New York, Farmingdale

W323A - Student Success in ET

11:30 A.M. - 1:00 P.M., REGENCY BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

Moderators: Jack Ii, Purdue University Fort Wayne; Michael Shenoda, State University of New York, College of Technology at Farmingdale

Transfer Students' Experiences, Identity Development, and Outcomes in Engineering Technology Programs: A Review

Ms. Ibarre Araojo, Wayne State University

Dr. Mohsen Ayoobi, Wayne State University

David Merolla, Wayne State University

WIP: Exploring First Generation Engineering Technology Students Acquisition of the Engineering Identity

Dr. Gretchen Dietz, University of North Carolina at Charlotte

Jordan C. Bullington-Miller

Enhancing Pathways to Degree Completion and Career Success for Engineering Students

Dr. Ali Zilouchian, Florida Atlantic University

Integrating Artificial Intelligence into Electrical Engineering Education: A Paradigm Shift in Teaching and Learning

Dr. Kenan Baltaci, University of Wisconsin, Stout

Ms. Monika Herrmann, University of Wisconsin, Stout

Dr. Ahmet Turkmen

W324 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 6

11:30 A.M. - 1:00 P.M., E143, OREGON CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderators: Kumar Yelamarthi, Tennessee Technological University; David Mikesell, Ohio Northern University

Bridging Innovations, Entrepreneurship, and Professional Development

Empowering Engineering Students: Blockchain Learning Tokens for Assessing ABET Student Outcomes and Enhancing Quality Control in Innovation-Based Education

Isaac Heizelman, University of North Dakota

Nicholas M. Bittner, University of North Dakota

Mr. Enrique Alvarez Vazquez, North Dakota State University

Dr. Dan Ewert, University of North Dakota

Ryan Striker, University of North Dakota

The Nexus of Entrepreneurship and Innovation in Engineering Education: Unlocking Engineers' Potential through Learning Experiences that Cultivate Self-Efficacy in Embracing New Ideas

Ms. Nada Elfiki, Stanford University

Dr. Helen L. Chen, Stanford University

Prof. George Toye

Dr. Micah Lande, South Dakota School of Mines and Technology

Mr. Felix Kempf, King's College London

Lauren Marie Aquino Shluzas, Stanford University

Dr. Sheri Sheppard, Stanford University

Understanding How Engineering Faculty Provide Engineering Students Opportunities to Develop Professional Skills In Technical Courses

Mrs. Sandra Furnbach Clavijo P.E., Stevens Institute of Technology

WIP: Developing Collaborative Entrepreneurship Competencies for Technical Majors

Blanca Esthela Moscoso

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito

W325 - Environmental Engineering Division (ENVIRON) Technical Session 4 - Engineering for One Planet & Sustainability Innovation

11:30 A.M. - 1:00 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Andrew Pfluger, United States Military Academy; David Dittenber, Cedarville University; Jean Andino, Arizona State University

Session includes several papers integrating the Engineering for One Planet framework, and several that address innovative approaches to integrating sustainability into courses or curricula.

A Unique, Action-Oriented, Collaborative Approach to Co-Creating a New Open-Source Sustainability Teaching Guide under a Creative Commons License

Cindy Cooper, The Lemelson Foundation

Cynthia Anderson, Alula Consulting

Dr. Lynn A. Albers, Hofstra University

Dr. John K. Estell, Ohio Northern University

Dr. Micah Lande, South Dakota School of Mines and Technology

Prof. Bala Maheswaran, Northeastern University

Sustainability in Engineering Graphics and Bicycle-Powered Blenders

Dr. Dustyn Roberts, University of Pennsylvania

Jarrett Stein, University of Pennsylvania

Tex Kang, University of Pennsylvania

Evaluating the Development of Higher Order Thinking with an Environmental Engineering Build Project

Prof. Mackenzie Booth, Cedarville University

Dr. David Brian Dittenber P.E., Cedarville University

Evaluating the Efficacy of Project-Based Approach for Teaching Humanities Courses to Engineering Students

Dr. Brainerd Prince, Plaksha University

Dr. Siddharth, Plaksha University

Ms. Rukmani Keshav, Plaksha University

Essentials of the Nurse+Engineer: Qualitative Methodology Applied to Foods Systems in Environmental Engineering

Dr. Daniel B. Oerther, Missouri University of Science and Technology

Sarah Oerther

W326 - ELOS Technical Session 6: Bring Your Own Experiment!

11:30 A.M. - 1:00 P.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Hans Mayer, California Polytechnic State University, San Luis Obispo

The BYOE session involves live demonstrations of laboratory exercises and equipment. The papers' content in the BYOE session focuses more on implementation, which includes fabrication, deployment, and student usage in addition to the underlying pedagogy.

BYOE: Determination of Diffusivity via Time-lapse Imaging with a 3D-Printed Spectrometer and a Raspberry PI

Lisa Weeks, University of Maine

Dr. Raymond Kennard, University of Maine

BYOE: McKibben Creature - A Low-Cost Robotic Simulation of A Biological Environment

Joseph Richard Midiri, Rowan University

Kathy Trieu, Rowan University

Wei Xue, Rowan University

Dr. Mitja Trkov, Rowan University

Dr. Cassandra Sue Ellen Jamison, Rowan University

Dr. Smitesh Bakrania, Rowan University

BYOE: SeaKatz 2.0 – Vision and Pneumatic Claw for Underwater Robot with VR Simulation

Dr. Iftekhar Ibne Basith, Sam Houston State University

Dr. Suleiman M. Obeidat, Texas A&M University

Dr. Ulan Dakeev, Sam Houston State University

Syed Hasib Akhter Faruqui, Sam Houston State University

Joe Nervis Jr., Sam Houston State University

BYOE: Soft Robotic Fish Project

Matthew Longstreth, Rowan University

Vincent Sambucci, Rowan University

Alex Thomas Siniscalco, Rowan University

Dr. Smitesh Bakrania, Rowan University

Dr. Mitja Trkov, Rowan University

Dr. Cassandra Sue Ellen Jamison, Rowan University

Wei Xue, Rowan University

BYOE: Wacky-Waving-Non-Inflatable-Arm-Flailing-Tube-Man for Teaching Soft Robotics

William Y. Heil-Heintz

Jacob Wojcicki, Rowan University

Dr. Mitja Trkov, Rowan University

Wei Xue, Rowan University

Dr. Smitesh Bakrania, Rowan University

Dr. Cassandra Sue Ellen Jamison, Rowan University

BYOE: Experimental Demonstration of Simplifying a System of Parallel Forces

Dr. Md Rashedul Hasan Sarker, University of Indianapolis

W327 - First-Year Programs Division Technical Session 8: Peers as Mentors & Instructors

11:30 A.M. - 1:00 P.M., A106, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Laura Alford, University of Michigan; Jackelyn Lopez Roshwalb, University of Maryland, College Park

This is a full paper session on student peers as mentors and instructors.

Mentoring for Making: Peer Mentors Working with Learners in a Making-Focused Engineering Course

Dr. Louis S. Nadelson, University of Central Arkansas

Dr. Pamela L. Dickrell, University of Florida

Katherine DeJesus

Peer Mentor Program Strategy for Improvement in First-Year Student Retention

Ms. Joan Matutes, University of Indianapolis

Miss Shelby Hacker, University of Indianapolis

Dr. Patricia Snell Herzog, Indiana University Indianapolis

Dr. Stephen J. Spicklemire, University of Indianapolis

Dr. Kenneth Reid, University of Indianapolis

Dr. Joan Martinez, University of Indianapolis

Brett Leonard, University of Indianapolis

Dr. Joseph B. Herzog, University of Indianapolis

The Experiences of Students as Peer Mentors in Engineering: Agency, Learning, Persistence, Uncertainty, and Culture.

Prof. Jill Davishahl, Western Washington University

Audrey Boklage, University of Texas at Austin

Beyond "How's it going?": A Collaborative Autoethnographic Study by Early Instructors in a First-Year Engineering Studio Course

Esme Eleanor Abbot, Franklin W. Olin College of Engineering

Berwin Lan, Franklin W. Olin College of Engineering

Luke Raus, Franklin W. Olin College of Engineering

Bill Fan, Franklin W. Olin College of Engineering

Dr. Zachary del Rosario, Franklin W. Olin College of Engineering

A Qualitative Study of the Role of Peer Engineering Peer Advising Leaders (EPALS) Program on Undergraduate Engineering Students' Learning Experience

Dr. Ibukun Samuel Osunbunmi, Penn State University

Maria Mosley

Mrs. Jennifer Saltsgiver

Jana Bontrager Auman, Penn State University

Dr. Christine B. Masters, Pennsylvania State University

Kellie Scofield

Dr. Stephanie Cutler, Pennsylvania State University

Shawna Dory, Pennsylvania State University

W328 - Graduate Studies Division (GSD) Technical Session 8: International Perspectives in Graduate Education

11:30 A.M. - 1:00 P.M., A109, OREGON CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Assessment of International Graduate Student Recruitment and Retention in Sample STEM Programs

Dr. Sanjeev Adhikari, Kennesaw State University

Kathryn Bedette, Kennesaw State University

Giovanni Loreto, Kennesaw State University

Initiating and Sustaining International Ethnic Engineering Education Scholarly Communities in the United States

Mr. Siqing Wei, Purdue University at West Lafayette (COE)

Dr. Moses Olayemi, University of Oklahoma

Integrating and Thriving in the First Semester as an International Graduate Student in the United States

Dr. Philip Appiah-Kubi, University of Dayton

Dr. Khalid Zouhri, University of Dayton

Cultural Adaptation and Advising Dynamics: Insights from International Engineering Graduate Students

Himani Sharma

Dr. Ann F. McKenna, The University of Iowa

Dr. Brooke Charae Coley, Arizona State University, Polytechnic Campus

W329 - Industrial Engineering Division (IND) Technical Session 4

11:30 A.M. - 1:00 P.M., E146, OREGON CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderators: Hossain Ahmed, Austin Peay State University; Dale Masel, The Ohio State University

Mixed Reality, Virtual Reality and Augmented Reality: Emerging Tools in Engineering Education

Mixed Reality as a Teaching Tool for Improving Spatial Visualization in Engineering Students

Ms. Israa Azzam, Purdue University, West Lafayette

Dr. Farid Breidi, Purdue University, West Lafayette

Dr. Faisal Aqlan, University of Louisville

Dr. Jose M. Garcia, Purdue University

Paul Asunda, Purdue University, West Lafayette

Warehouse Augmented Reality Program (WARP): A Web Tool for Warehouse Design and Operation Education

Eric John Estadt, Pennsylvania State University

Khoa Nguyen, Pennsylvania State University

Kevin Skinner, Pennsylvania State University

Dr. Ashkan Negahban, Pennsylvania State University

Dr. Omar Ashour, Pennsylvania State University

Dr. Sabahattin Gokhan Ozden, Pennsylvania State University

Use of Virtual Reality to Improve Learning Experience on a Lean Manufacturing Course

Dr. Gibrán Sayeg-Sánchez, Tecnologico de Monterrey

Prof. Nicolás Amado-Moranchel, Tecnologico de Monterrey

Dr. Andres Esteban Acero, Tecnologico de Monterrey

Enhancing Engineering Education Through Hands-on Virtual Reality Training Experiences: Developing Skills in the Continuous Improvement of Manufacturing Systems

Dr. David Parsley, University of Kentucky

W330 - Computing and Information Technology Division (CIT) Technical Session 7

11:30 A.M. - 1:00 P.M., D134, OREGON CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Reza Sanati-Mehrizy, Utah Valley University; Afsaneh Minaie, Utah Valley University

An Enhanced Learning Method Used for Datapath Design Topics in Computer Engineering Curriculum

Dr. Tingjun Lei, Mississippi State University

Mr. Timothy Sellers, Mississippi State University

Prof. Chaomin Luo, Mississippi State University

Prof. Gene Eu Jan, Tainan National University of the Arts

Prof. Zhuming Bi, Purdue University, Fort Wayne

Progress Report on BE-TEC: An NSF S-STEM Project

Dr. Afsaneh Minaie, Utah Valley University

Dr. Reza Sanati-Mehrizy, Utah Valley University

The Intersection of Smart Home Technology and the Disabled Population

Jacquelyn Williams Trost, North Carolina Agricultural and Technical State University

W332 - International Division (INTL) Technical Session: Cultural Perspectives

11:30 A.M. - 1:00 P.M., D137, OREGON CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Jose Quadrado, Instituto Superior De Engenharia De Lisboa

Creating world-class STEM leaders in a globalized world

Employment Outcomes Following Industrial Attachment in Kenya

Allison Biewenga, Purdue University at West Lafayette (COE)

Prof. Jennifer Deboer, Purdue University

Dr. Stephanie Claussen, San Francisco State University

Dr. Kirsten A. Davis, Purdue University

David Owuor Gicharu, Tumaini Innovation Vocational Training Center

Gladys Jeptoo Kerebey, Tumaini Innovation Vocational Training Center

Exploring and Expanding Support for International Students in Engineering: Faculty Reflections Beyond Academic Boundaries

Animesh Paul, University of Georgia

Dr. Sreyoshi Bhaduri, ThatStatsGirl

Dr. Racheida S. Lewis, University of Georgia

Dr. Lilianny Virguez, University of Florida

Dr. Krishna Pakala, Boise State University

Dr. Debarati Basu, Embry Riddle Aeronautical University

Global Engineering Modules that Teach Currency Exchange and International Trade

Dr. Hans M. Tritico, University of Mount Union

Dr. Chad S. Korach, University of Mount Union

Opening the Doors for International Students: Are We Ready?

Dr. Sushil Acharya, Robert Morris University

Jennifer Creamer, Robert Morris University

Personal Epistemology of Middle Eastern Graduate Students at Oregon State University: Beliefs about Source of Knowledge

Hashim Alyousef, Oregon State University

Dr. Shane A. Brown P.E., Oregon State University

W333 - Meet at Springfield Middle: Where Engineering Meets Education, Woozle Wuzzle!

11:30 A.M. - 1:00 P.M., G132, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Elizabeth Parry, STEM Education Insights

Engineering programming for a middle school audience

Learning Goals in Middle School Engineering: A Systematic Review and Comparison with NGSS and ASEE Frameworks (Fundamental)

Natasha Lagoudas Wilkerson, Texas A&M University

Joanne K. Olson, Texas A&M University

Dr. Karen E. Rambo-Hernandez, Texas A&M University

Dr. Rachelle M. Pedersen, Texas A&M University

Supporting Middle School Students' Learning Outcomes and Engagement with NGSS-Aligned Quantum-Infused Science Curriculum

Dr. Zeynep Gonca Akdemir, Purdue University

Dr. Muhsin Menekse, Purdue University

Dr. Erica W. Carlson, Purdue University

Nicholas Dang, Purdue University

Mahdi Hosseini, Northwestern University

Dongyang Li, Purdue University

Establishing Sustainable Programs: Creating Lasting Computer Science Summer Programs for Middle School Students (Evaluation)

Dr. Krista Dulany Chisholm, University of Florida

Olivia Lancaster, University of Florida

Areesha Razi, University of Florida

Dr. Nancy Ruzycki, University of Florida

W333B - Marge's Mission: Empowering STEM Innovation

11:30 A.M. - 1:00 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Manuel Figueroa, The College of New Jersey

Supporting educators and students in developing skills and confidence to create innovative engineering solutions

Insights from the NanoEnvironmental Engineering for Teachers (NEET) Graduate Course on Teachers' Self-Efficacy in Teaching Engineering (Evaluation)

Faiza Zafar, Rice University

Carolyn Nichol, Rice University

Mariana Elizabeth Quinn, Rice University

My Code Isn't Working! Mathematics Teachers' Adaptive Behaviors During an Engineering Design Challenge (Fundamental)

Emily M. Haluschak, Purdue University

Melissa Colonis PhD, Purdue University

Kaitlyn B. Myers, Purdue University

Prof. Tamara J. Moore, Purdue University

Elementary Student Teams' Design Failure Experiences and Factors that Affect their Opportunities to Learn from Failure (Fundamental)

Dr. Pamela S. Lottero-Perdue, Towson University

W334 - Mapping Initiatives to Support LGBTQIA Engineers

11:30 A.M. - 1:00 P.M., REGENCY BALLROOM D, HYATT REGENCY PORTLAND (HQ HOTEL)

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

Moderators: Stacey Sexton; Bryce Hughes, Montana State University - Bozeman; Rebecca Campbell-Montalvo, University of Connecticut

Systemic change and systems-level culture changes are often the goals of engineering-education studies and projects. However, the activities of these projects often focus on one element of the larger system, typically the student experience. The student experience is a keystone of engineering education, but student-level changes have only a small impact on the larger systems in place. This illuminates a tension between the stated vision and the actual ability to impact the systemic structures perpetuating inequitable access to, experiences within, engineering environments. Our position is that systems-level change remains a plausible outcome through a coordinated, theoretically grounded approach to making system change. In this session, the facilitators will engage attendees to situate our collective efforts within larger social, historical, political, and cultural contexts through the application of social-science theoretical constructs such as Bronfenbrenner's ecological model, as well as models understanding the nexus of research, policy, and practice. Our session would focus on the area of inquiry that the facilitators have deep knowledge of LGBTQIA populations in engineering disciplines.

Bronfenbrenner's ecological model of human development articulates different "layers" moving from an individual in the center outward to the "macro-system" of the wider culture and socio-historical factors and the "chrono-system" or life stage of the individual. Specifically, we would engage participants in a collective activity mapping existing research projects, implementation programs, or policy initiatives to the stage of the ecological model that they are designed to impact. For example, student-facing programs are directly designed to equip the individual with the knowledge, skills, or attitudes necessary to succeed in engineering. Initiatives aimed at engineering departments or the workplace, however, are designed to impact other elements of the system that shape the environment experienced by a given student.

By mapping the known initiatives and programs, we will be able to visualize where current resources are focusing their impact, and where there may be opportunities for creating new programs to impact all levels of the system in a coordinated manner, thus magnifying the impact that any one initiative can have. This session will focus in specifically on those projects, programs, and policies impacting LGBTQIA members of the engineering community; however, this mapping exercise will highlight for us where our programs may have synergy with other demographically focused efforts such as those supporting Black/African American members, cisgender women, and disabled community members, laying the foundation for future collaborations. Facilitators will proactively outreach to PIs to ensure that the session maximizes the likelihood of tapping into knowledge and resource networks.

We recognize the limitations associated with a time-bound conference session and have scoped our expected outcomes to be somewhat modest, but achievable. 1) Greater awareness of intersectional nature of impacting the ecosystem for LGBTQIA people in Engineering (policy, research, practice), 2) Awareness of levers of influence, 3) Coordinate across multiple efforts (existing projects), 4) Identifying knowledge gaps, 5) Networking with others in this space, particularly for those who are themselves members of the LGTQIA community.

W334B - Identity Formation and Engineering Cultures

11:30 A.M. - 1:00 P.M., E141, OREGON CONVENTION CENTER

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

Moderator: Aubrey Wigner, Colorado School of Mines

Liberal Education/Engineering & Society Division (LEES) Paper Session

Why Would You Ask Me about Engineering Culture and Belonging? Introducing Social Science Prompts into Engineering Surveys

Dr. Cindy Rottmann, University of Toronto

Ms. Dimpho Radebe, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

Dr. Andrea Chan, University of Toronto

Ms. Emily Macdonald-Roach, University of Toronto

Ms. Saskia van Beers, University of Toronto

Sasha-Ann Eleanor Nixon, University of Toronto

Developing Engineers' Critical Consciousness through Gender

and Ethnic Studies: Reframing STEM Identity

Dr. Jenn Stroud Rossmann, Lafayette College

Prof. Mary A. Armstrong, Lafayette College

Implications of Engineering and Education Professor's Problem-Solving Mindsets on Their Teaching and Research

Ms. Alexis Suzanne Capitano, Colorado School of Mines

Ryan Miller, Colorado School of Mines

Dr. Kathryn Johnson, Colorado School of Mines

Engineering Identity Development Among International Students in UK Foundation Year

Dr. Madeline Polmear, King's College London

The Power of Place: A Critical Examination of Engineering Enculturation & Identity Formation

Dr. Timothy Duane Reedy, University of Maryland, College Park

Dr. David Tomblin, University of Maryland, College Park

W338A - MECH - Technical Session 11: Integration of Problem-Solving and Design Thinking

11:30 A.M. - 1:00 P.M., C121, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Joseph Rencis, University of Texas at Dallas

This session explores integrating problem-solving and design thinking in mechanical engineering education. Topics include evaluating control platforms, integrating MATLAB Grader, longitudinal studies on problem-based learning in heat transfer, combining problem-based learning with an entrepreneurial mindset, and connecting machine-design concepts through forensic engineering activities.

Work In Progress: Addressing the Great Debate on Best Control Platforms in Mechanical Engineering

Dr. Lawrence Funke, Ohio Northern University

Dr. Maria-Isabel Carnasciali, Merrimack College

Reflections on Integrating MATLAB Grader across a Mechanical Engineering Curriculum

Dr. Patrick M. Comiskey, Milwaukee School of Engineering

Dr. Prabhakar Venkateswaran, Milwaukee School of Engineering

Dr. Michael Christopher Sevier, Milwaukee School of Engineering

A Mixed Methods, Longitudinal Evaluation of Problem-Based Learning and Inquiry-Based Activities in a Heat-Transfer Course and Lab

Dr. Michael Foster, George Fox University

Dr. Luann Foster

Work in Process: Transformative Integration of Problem-Based Learning and Entrepreneurial Mindset in Early and Middle Stages of Mechanical Engineering: A Focus on Statics and Dynamics

Dr. Danahe Marmolejo, Saint Louis University

Dr. Chris Carroll P.E., Saint Louis University

Dr. Scott A. Sell, Saint Louis University

Connecting Machine Design Concepts via an Undergraduate Forensic Engineering Activity

Dr. Amanda Sterling, Auburn University

W338B - MECH - Technical Session 12: Promoting Student Success and Motivation

11:30 A.M. - 1:00 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Hadas Ritz, Cornell University; Samantha Hoang, Seattle University

This session focuses on strategies to enhance student success and motivation in mechanical engineering. It covers implementing an industry-centered technical communications course, introducing concept maps in heat transfer, integrating sustainability aspects throughout the curriculum, comparing individual and cooperative assignments in fluid mechanics, and promoting transfer student success through articulation agreements.

Implementation of a Standalone, Industry-centered Technical Communications Course in a Mechanical Engineering Undergraduate Program

Prof. Jenni Buckley, University of Delaware

Dr. Amy Trauth, American Instiutes for Research (AIR)

Dr. David L. Burris, University of Delaware

Dr. Alexander John De Rosa, University of Delaware

Introducing Concept Maps in an Undergraduate Heat Transfer Course

Dr. Jessica Lofton, University of Evansville

Introducing Social and Environmental Sustainability Aspects Cohesively throughout the Student Experience: One Course at a Time while Considering the Program as a Whole

Dr. 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

Andrew Elby, University of Maryland, College Park

Comparing the Impact of Individual v. Cooperative Bloom's Taxonomy-based In-class Assignments on Student Learning and Metacognition in an Undergraduate Fluid Mechanics Course

Dr. Phapanin Charoenphol, Texas A&M University

Dr. Arkasama Bandyopadhyay, Texas A&M University

Promoting Transfer Students' Success through Articulation Agreements: An Empirical Case Study in Mechanical Engineering

Anna-Lena Dicke, University of California, Irvine

Kameryn Denaro

Dr. David A. Copp, University of California, Irvine

W339 - Student Self-assessment in Mechanics Courses

11:30 A.M. - 1:00 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Sahithya Reddivari, Georgia State University - Perimeter College; Christine Masters, Pennsylvania State University

A Secure, Scalable Approach to Student-Graded Homework for Self-Reflection

Dr. Matthew Jordan Ford, University of Washington

Dr. Heather Dillon, University of Washington

Targeted Self-Graded Problems in Engineering Mechanics

Dr. Ashraf Badir, Florida Gulf Coast University

Dr. Ali Irmak Ozdagli, Florida Gulf Coast University

Dr. Jiehong Liao, Florida Gulf Coast University

Dr. Micheal Abiodun Uduebor, Florida Gulf Coast University

Use of Sentiment Analysis to Assess Student Reflections in Statics

Dr. Amie Baisley, University of Florida

Chiranjeevi Singh Marutla, University of Florida

Using Scaffolded Exams and Post-Exam Reflection to Foster Students' Metacognitive Regulation of Learning in a Mechanics of Materials Class

Dr. Huihui Qi, University of California, San Diego

Isabella Fiorini, University of California, San Diego

Edward Zhou Yang Yu, University of California, San Diego

Richard Eugene Vallejo Jr., University of California, San Diego

Zongnan Wang, University of California, San Diego

Trevor Keoki Oshiro, University of California, San Diego

Changkai Chen, University of California, San Diego

W340 - Diverse Pathways in Engineering Education: Exploring Experiences and Opportunities

11:30 A.M. - 1:00 P.M., G-130, OREGON CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Julian Sosa-Molano, Florida International University; Benjamin Flores, University of Texas at El Paso

This session delves into diverse pathways and experiences within engineering education, focusing on initiatives aimed at fostering inclusivity and promoting opportunities for underrepresented groups. Presentations include a discussion on post-baccalaureate research experiences for students at Hispanic-serving institutions, highlighting the role of mentorship and support for graduate students from diverse backgrounds. Additionally, the session explores group comparisons of sociocultural variables and work outcomes among early-career Latine engineers, shedding light on this demographic's unique challenges and opportunities. A systematic literature review on summer bridge programs for engineering students provides insights into effective strategies for supporting the transition to higher education, particularly for students from underrepresented backgrounds. Lastly, the session examines the experiences of students with physical disabilities in engineering through a literature review, emphasizing the importance of accessibility and inclusivity in engineering programs. Join us to explore the diverse pathways and experiences shaping engineering education today.

Post-Baccalaureate Research Experiences for Students at Two Hispanic-Serving Institutions (Experience)

Dessaray Monique Gorbett, University of Texas at El Paso

Dr. Benjamin C. Flores, University of Texas at El Paso

Dr. Cristina Villalobos, The University of Texas Rio Grande Valley

Sara E. Rodriguez, University of Texas at El Paso

Ms. Ariana (Ari) Arciero, University of Texas at El Paso

Josef Aaron Sifuentes, The University of Texas Rio Grande Valley

Group Comparisons of Sociocultural Variables and Work Outcomes among Early Career Latine Engineers

Dr. Lisa Y. Flores, University of Missouri - Columbia

Dr. Rachel L. Navarro, University of North Dakota

Dr. Pat Garriott

Dr. Sarah Lynn Orton P.E., University of Missouri - Columbia

Jinkoo Lee, University of Missouri - Columbia

Chia-Lin Tsai, University of Northern Colorado

Han Na Suh, Georgia State University - Perimeter College

Bo Hyun Lee, The Ohio State University

Summer Bridge Programs for Engineering Students: A Systematic Literature Review

Dr. Julie M. Smith, CSEdResearch.org

Jordan Williamson

Experiences of Students with Physical Disabilities in Engineering: A Literature Review

Julian Rodrigo Sosa-Molano, Florida International University

Dr. Alexandra Coso Strong, Florida International University

W341 - Multidisciplinary Engineering Division (MULTI) Technical Session 7

11:30 A.M. - 1:00 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Amirhosein Mansouri; Olgha Qaqish, North Carolina State University at Raleigh

A Multi-institution Design Project on Sustainable Cities: The Sustainability and Social Entrepreneurship Fellowship

Mr. Christopher Rennick, University of Waterloo

Dr. Nadine Ibrahim, University of Waterloo

Prof. Gordon Krauss, Harvey Mudd College

Prof. Sanjeev Bedi P.Eng., University of Toronto

Development and Impact of Research Efficacy in a Undergraduate Teaching-Assistant Certification Class

Dr. Jamie R. Gurganus, University of Maryland, Baltimore County

Michael M. Malschützky, Hochschule Bonn-Rhein-Sieg, Germany

The Perception of Engineering Undergraduates Towards an Active-Learning Pedagogy at a Minority Serving Institution.

Mr. Tijesunimi Abraham Adeyemi, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Work-in-Progress: Diversity, Equity, and Inclusion Initiatives and Assessments in a non-Ph.D. Granting School of Engineering and Applied Science Embedded in a Multicultural Region

Prof. Margaret A. Hunter, Hofstra University

Dr. David M. Rooney, Hofstra University

Dr. Richard J. Puerzer, Hofstra University

W343 - ASEE Awards Lunch

11:00 A.M. - 12:30 P.M., PORTLAND BALLROOM B - SGS, OREGON CONVENTION CENTER

Sponsor: ASEE Board of Directors

Join us at this lunch to honor and celebrate the exceptional achievements of leaders in engineering and engineering technology. Recognized for their innovation, dedication, and impact will be:

- ASEE Hall of Fame inductees
- Outgoing Board members
- Outstanding Zone campus representatives
- 2023 Best Paper Award winners
- 2024 ASEE Fellows
- PIC and Annual Conference Chairs

ASEE will also announce the 2024 winners of the Society's prestigious national and Society awards.

Note: This is a ticketed event. Non-award winners' tickets cost $50.

W345 - Engineering Physics and Physics Division Technical Session

11:30 A.M. - 1:00 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Tooran Emami, United States Coast Guard Academy

Leveraging Novel Machine Learning in Engineering Education

Dr. James Wanliss, Anderson University

Mapping Writing Concepts Across an Undergraduate Physics Curriculum

Dr. Patrick Carzon, Franciscan University of Steubenville

Ms. Megan Elizabeth Mericle

John Patrick Coleman

Jessica Raley, University of Illinois Urbana-Champaign

Julie L. Zilles, University of Illinois Urbana-Champaign

Continuous Improvement from Foundation to Accreditation: Challenges in Creating an Engineering Program at a Small Liberal Arts College

Dr. Derek Breid, Saint Vincent College

Dr. Stephen Jodis, Saint Vincent College

Dr. Stacy Birmingham, Saint Vincent College

Exploratory Literature Review of Education Theories Guiding Engineering and Physics Outreach

Dr. Emmabeth Parrish Vaughn, Austin Peay State University

Steven Warth, Austin Peay State University

Dr. Bobette Bouton, Austin Peay State University

Use of Jupyter Notebooks to Increase Coding across the Curriculum

Dr. Carl K. Frederickson, University of Central Arkansas

W347 - Student Division Technical Session 7: Teaching and Learning Practices

11:30 A.M. - 1:00 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderators: Benjamin Chaback, Embry-Riddle Aeronautical University - Daytona Beach; Xinyi Ma, University of Toronto

Breaking Barriers in Engineering Teams: Exploring the Experiences of African American Female Students

Ms. Isabel A. Boyd, University of Tennessee, Knoxville

Kaitlyn Anne Thomas, University of Nevada, Reno

Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

Dr. Kelly J. Cross, Georgia Institute of Technology

Comparing First- and Fourth-Year Undergraduate Engineering Experiences of First-Generation Students Using Narrative Analysis

Emily Nicole Fitzpatrick, University of Nebraska, Lincoln

Nosakhare Iyobosa Idiaghe, University of Nebraska, Lincoln

Chloe Faith Mann, University of Nebraska, Lincoln

Dr. Jessica R. Deters, University of Nebraska, Lincoln

Weekly Professional Development Lunches to Build Community Among an S-STEM Cohort

Caroline Cresap, Louisiana Tech University

Ashtyne Klair Monceaux

Dr. David Hall, Louisiana Tech University

Dr. Krystal Corbett Cruse, Louisiana Tech University

W351 - Women in Engineering Division (WIED) Technical Session 6 - Institutional Contexts

11:30 A.M. - 1:00 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Himani Sharma, Georgia Institute of Technology

The papers in this session address the institutional context of women in engineering and computer science.

Gender Equity in Higher-Education Institutions: An Analysis of Student Perceptions in an Engineering School in Chile

Prof. Camila Zapata-Casabon, Universidad Andres Bello, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Santiago, Chile

Institutional Context Matters: Linking Characteristics of Universities to the Gender Composition of Engineering and Computer Science Programs

Regina Werum, University of Nebraska, Lincoln

Dr. Patricia Wonch Hill, University of Nebraska, Lincoln

Joseph C. Jochman, University of North Dakota

Andrea Johnson

Dr. Lance C. Perez, University of Nebraska, Lincoln

Stephen Cooper, University of Nebraska, Lincoln

The Role of STEM Society Scholarships in Supporting the Retention and Persistence of Women in Engineering and Computer Science

Rebeca Petean, Society of Women Engineers

Dr. Roberta Rincon, Society of Women Engineers

W355 - Special Session: Engineering Leadership—The Courage to Change

11:30 A.M. - 1:00 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Leadership Development Division (LEAD)

Exploring the Role of Mentorship within a Social Network to Develop Leadership in Engineering Educators

Stephen Mattucci, University of Guelph

Makary Nasser, University of Guelph

ASEE 2024 Paper—Examining Cultural Elements to Enable Change

Dr. Marnie Jamieson, University of Alberta

Dr. John R. Donald P.Eng., University of Guelph

Evaluating the Impact of Teaching Undergraduate Engineering Students Strategies to Become Leaders in Diverse Environments

Dr. Renee M. Desing, University of Washington

Ms. Cathryne Jordan, University of Washington

Arron Corey Clay, University of Washington

Dr. Joyce Yen, University of Washington

Ali Cho, University of Washington

Robin Neal Clayton, University of Washington

Karen Thomas-Brown, University of Washington

Engineering Change: Introducing Systems Thinking as an Engineering Leadership Skill

Dr. Emily Moore, University of Toronto

Dr. Lisa Romkey, University of Toronto

Mr. Amin Azad, University of Toronto

W357 - Transforming Courses with Mastery-Based Grading: How to Train Faculty to Redesign a Course Using Mastery-Grading

11:30 A.M. - 1:00 P.M., OREGON BALLROOM 201, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Sharona Krinsky, California State University, Los Angeles

Speakers: Sharona Krinsky, California State University, Los Angeles; Mr. Robert Christopher Bosley, California State University, Los Angeles

Grading practices have been identified as one of the main culprits in the persistence of equity gaps. Traditional grading methods can be inequitable, ineffective, and even damaging.

The CLIMB-UP project (EHR: IUSE/HSI) aims to improve the institutional capacity to improve teaching and learning by using Mastery-Based Grading (MBG) in key sophomore courses (i.e., Statics, Strengths of Materials, Fluid Mechanics, Dynamics, and Embedded Systems) at a very-high enrolling four-year public Hispanic-Serving Institution. CLIMB-UP is a three-year professional development program for faculty to support redesigning and implementing sophomore-level "gateway" engineering courses into a Mastery Grading approach and documenting its effect on students' academic profiles. Mastery grading is a form of grading based on (1) measurable learning outcomes, (2) eventual mastery of the material, (3) multiple opportunities to show mastery, with no penalty for failed attempts and (4) the use of helpful feedback to provide feedback loops to assist student learning.

We are coming to the end of the initial three-year project for CLIMB. One of the key deliverables of the project is a faculty-development training program to assist faculty in developing the skills needs to redesign a course to use Mastery Grading and implement it at their institution. The purpose of this special session is to introduce this training program to faculty-development professionals, walk the participants through what it takes to train faculty to redesign a course for Mastery Grading, and present all the necessary materials and support for institutions who wish to provide this course for their faculty. The training program consists of a 30-hour initial intensive that can be done in a variety of in-person or online synchronous timeframes followed by a series of follow up tasks and projects for faculty to complete. A comprehensive timeline for the training program, along with supporting documentation for forming and supporting a faculty learning community will also be provided.

After the initial 30-hour intensive, there is a subsequent training component for faculty who wish to adopt a course after it has been redesigned by a different faculty member.

These training materials are also included.

Format

The format of this session will be a 90-minute work session where each of the four pillars of Mastery Grading listed above will be presented along with the readings, training materials and structures to be utilized by instructional designers or faculty developers in working with their own faculty. Participants will be given USB drives with copies of all the relevant training materials and will have the opportunity to participate in shorter versions of the main components of the training in order to experience parts of the training program for themselves.

Learning Objectives

At the end of this session, participants will be able to:

1. Explain the concepts of the four pillars of Mastery Grading;

2. Describe the different strands of the faculty training program;

3. Facilitate the use of literature-to-practice training sessions with faculty;

4. Facilitate the rewriting of effective, clear, measurable learning outcomes by faculty;

5. Explain the four grading architecture decisions that faculty need to make in the development of a Mastery Graded course; and

6. Provide training on the writing of helpful feedback and utilizing feedback loops in a Mastery Graded course.

Included in this session will be samples of the different training activities included in the faculty development course including:

Literature-to-practice: reading of relevant research literature followed by immediate discussions of applying the literature to the goal of course redesign.

Direct instruction: Introduction of new content by the session facilitators

Group work: Working with informal groups to discuss different challenge questions posed by the facilitators.

The core facilitators of this session will be Sharona Krinsky and Robert Bosley. Professors Krinsky and Bosley were the faculty developers who created the training program being presented, ran it for the participants in the CLIMB project, and have subsequently run it two additional times for 25 faculty each time in partnership with the Mathematics Association of America.

W357B - Faculty Development Division (FDD) Technical Session 10

11:30 A.M. - 1:00 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Jeyoung Woo, California State Polytechnic University, Pomona; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 10

Advancing Peer Observation Processes: Progress, Lessons, and Faculty Development

Nyna Jaye DeWitt, University of Georgia

Animesh Paul, University of Georgia

Dr. John Ray Morelock, University of Georgia

Dr. Eliza A. Banu, University of Georgia

Evaluating the Importance of Inclusive Teaching in STEM Faculty Hiring

Dr. Torrie A. Cropps, The University of Texas at Dallas

Jue Wu, University of California, Berkeley

Ms. Samara Rose Boyle

Dr. Canek Moises Luna Phillips, Rice University

Prof. Stephen P. Mattingly, The University of Texas at Arlington

Dr. Yvette E. Pearson P.E., The University of Texas at Dallas

Nursing + Engineering: Lessons Learned in Interdisciplinary Facilitator Dynamics for Faculty Development

Dr. Amber F. Young-Brice, Marquette University

Dr. Allison Murray, Marquette University

Dr. Somesh Roy, Marquette University

Lisa Chase, Marquette University

Teacher's Perceptions of the Fertility in Implementing Project-based Learning in Engineering Courses

Dr. Octavio Mattasoglio Neto, Instituto Mauá de Tecnologia

Gabriel Monesi Souza

Unveiling the Impact of Teachers' Beliefs on Student Development in Rural STEM Education: Roles of Classroom Evaluation, STEM Literacy and Subject Type

Yi Wang

Fangyuan Chai

Yuan Liu

Jun Zhu

Jing Jin

W359 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 4

11:30 A.M. - 1:00 P.M., B118, OREGON CONVENTION CENTER

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

Constructing the Future from Where We Already Stand: A Workshop Bridging Latine Everyday Ingenuity and Connected Learning

Dr. Raul Mishael Sedas, Caltech; LIGO

Culturally Relevant Practices at Hispanic Serving Institutions: A Systematic Review of Engineering Education Literature

Dr. Hyun Kyoung Ro, University of North Texas

Shirley Anderson, University of North Texas

Diminishing the Data Divide: Interrogating the State of Disability Data Collection and Reporting

Sage Maul, Purdue University

Ms. Rachel Figard, Arizona State University

Engineering Education in Human Rights and Sustainability: Exploring Students' Motivations and the Learning Outcomes from an Undergraduate Class at the University of Connecticut

Minju Lee, University of Connecticut

Dr. Davis Chacon-Hurtado, University of Connecticut

Sophia Fenn, University of Connecticut

Shareen Hertel, University of Connecticut

Equitable Attainment of Engineering Degrees: A Tri-University Study and Improvement Effort

Kian G. Alavy, The University of Arizona

Matthieu Bloch, Georgia Institute of Technology

Prof. Gregory L. Heileman, The University of Arizona

Benjamin Richmond, The University of Arizona

Ahmad Slim, The University of Arizona

Prof. Mitchell L. R. Walker II, Georgia Institute of Technology

David Ruiter, University of California, San Diego

Social and Environmental Justice in the STEM Classroom: How do STEM Instructors Relate to the Impact of their Engineering Work Before and After a Critical Pedagogy Intervention?

Jorge Andrés Cristancho, Purdue Engineering Education

Mr. Leonardo Pollettini Marcos, Purdue University

Prof. Eugene Leo Draine Mahmoud, Mt. San Antonio Community College and Purdue University

W359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 11

11:30 A.M. - 1:00 P.M., A107, OREGON CONVENTION CENTER

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

Toward Equity and Inclusivity in Engineering Classrooms: Understanding Students' Disparities in Response to Clinical Observations and Needs-Finding Course Development

Ms. Jacquelynn Ann Horsey, University of Arkansas

Alyssandra P. Navarro, University of Arkansas

Timothy J. Muldoon, University of Arkansas

Dr. Mostafa Elsaadany, University of Arkansas

Towards a Distributed Model of Teaming: Instructor-driven Lessons from I-MATTER

Austin Morgan Kainoa Peters, Purdue University

Dr. Alice L. Pawley, Purdue University

Stephanie Masta, Purdue University

Dr. Darryl Dickerson, Florida International University

Dr. Matthew W. Ohland, Purdue University

Tuition Equity: A Study of the Disparate Impacts of Block Tuition

Dr. Nicholas A. Baine P.E., Grand Valley State University

Dr. Karl Brakora, Grand Valley State University

Understanding Persistence in Engineering Education through a Comprehensive Survey Tool

Dr. Brian Dick, Vancouver Island University

Kodi Rivera, Simon Fraser University

Michael Sjoerdsma, Simon Fraser University

Unpacking Whiteness and Racialization in Engineering: A Multimodal Discourse Analysis of Social Media Posts

Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

M. Sidury Christiansen, The University of Texas at San Antonio

W381 - Best DEI Paper Award Finalists

11:30 A.M. - 1:00 P.M., REGENCY BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderator: Meagan Pollock, Engineer Inclusion

The finalists for this year's Diversity, Equity, and Inclusion Best Paper Award will be presented in this session.

W393 - CP12 Delegates' & Business Meeting

11:30 A.M. - 1:00 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on P12 Engineering Education

W394 - SPONSOR TECH SESSION: Adopting and Assessing Story-Driven Learning Approaches in Your Courses - Presented by EngineeringUnleashed

11:30 A.M. - 1:00 P.M., B110 - SPONSOR TECH ROOM, OREGON CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

In this hands-on workshop, you will be introduced to the key elements of personal storytelling, engage in story-driven learning as a pedagogical method and learn how this method can help you create value for your students. You will hear from faculty about their experiences with story-driven learning as a path toward developing students' entrepreneurial mindset and other psychosocial outcomes. Faculty will also share reflections from their students about these learning experiences within several different courses across multiple disciplines. Participants will also get the opportunity to learn what the science says behind story-driven learning's impact on entrepreneurial mindset and how to implement this form of pedagogical assessment. Throughout this workshop, you will also participate in several SDL applications instructors have developed for use in any engineering department. Lastly, participants will be given the opportunity to work in small groups to determine strategies for SDL integration into their own courses.

Speakers:

Georgia Tech

* Kevin Haas

* Kali Morgan

* Ariana Turner

* Hyeyeon Lee

Rose-Hulman Institute of Technology

* Michelle Marincel Payne

* Julia Williams

W443 - 2024/2025 ASEE Board of Directors Meeting

1:00 P.M. - 3:00 P.M., REGENCY BALLROOM A, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Board of Director

W469 - Free Time - Food Available for Purchase at Concession Stands in Convention Center

1:00 P.M. - 2:00 P.M., EXHIBIT HALL B, C & D, OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

Food available for purchase at concession stands in Convention Center

W481C - CDEI Interviews

1:00 P.M. - 5:00 P.M., WILLAMETTE 7, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderator: Christina Alston, University of Colorado Boulder

CDEI interviews

W405 - ChE Division Open Mic

2:00 P.M. - 3:30 P.M., DESCHUTES BALLROOM B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Chemical Engineering Division (ChED)

Moderators: Sarah Wilson, University of Kentucky; Christopher Barr

ChE Division Open Mic

W406 - Civil Engineering Division (CIVIL) Technical Session - Instructional Technology 2

2:00 P.M. - 3:30 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Ann Sychterz, University of Illinois at Urbana - Champaign; Jennifer Retherford, The University of Tennessee, Knoxville

Developing Augmented Reality Applications to Help Engineering Students Learn Spatial Structural Engineering Concepts

Ayatollah S. Yehia, University of Virginia

Prof. Devin K. Harris, University of Virginia

Dr. Diana Bairaktarova, Virginia Polytechnic Institute and State University

Development of the AISC "Days of Steel" Video Series to Engage Students Through Fun Online Videos (Case Study)

Dr. Anthony Battistini, Angelo State University

Exploring Educational Needs and Practices in Structural Analysis

Dr. Joel Lanning, University of California, Irvine

Dr. Matthew W. Roberts, Southern Utah University

Prof. Brandon K. Wiggins, Southern Utah University

Software Applications and Pedagogical Strategies for Improving Student Understanding of Structural Analysis and Dynamics (Works-In-Progress)

Dr. Tamecia R. Jones, North Carolina State University at Raleigh

Prof. Kevin Han, North Carolina State University at Raleigh

Tangible Digital Twins: Experiencing Structural Mechanics by Inducing the Sense of Stiffness via Hand Gestures in Virtual Reality

Kaiyuan Wang, University of Illinois Urbana-Champaign

Mr. Yuxiang Zhao, University of Illinois at Urbana-Champaign

Ishfaq Aziz, University of Illinois Urbana-Champaign

Dr. Mohamad Alipour, University of Illinois Urbana-Champaign

W409 - Artificial Intelligence (AI) and Case Studies in Construction Education

2:00 P.M. - 3:30 P.M., B119, OREGON CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Behnam Shadravan, Florida A&M University; Nicholas Tymvios, Bucknell University

Artificial Intelligence in the Construction Industry: A Competency-Based Examination Through Expert Lens

Prof. Hector Buyones-Gonzalez, Universidad Andres Bello, Chile

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Chile

ChatGPT to Support Critical Thinking in Construction-Management Students

Daniel Abril Camino

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

Sixto Duran Ballen

Empowering Future Construction Professionals by Integrating Artificial Intelligence in Construction-Management Education and Fostering Industry Collaboration

Ms. Erika Judith Rivera P.E., Florida International University

Claudia Calle Müller, Florida International University

Miss Rubaya Rahat, Florida International University

Mr. Mohamed ElZomor P.E., Florida International University

Bridging Theory and Practice: Exploring Real-World Problem Solving for Construction Engineering Seniors

Prof. Carmen Paz Munoz, Universidad Andres Bello, Chile

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Chile

Development of an Educational Case Study to Explore Target Value Design

Dr. Long Duy Nguyen P.E., Florida Gulf Coast University

Dr. Zofia Kristina Rybkowski, Texas A&M University

Dr. Anh D. Chau P.E., Florida Gulf Coast University

Dr. Daniel Linares, Florida Gulf Coast University

W413 - Design in Engineering Education Division (DEED) - Assessment of Design Projects and Approaches to Capstone Courses

2:00 P.M. - 3:30 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Corey Schimpf, University at Buffalo, The State University of New York

A Pathway to Create and Validate an Engineering Design Rubric across All Engineering Programs

Dr. Behzad Beigpourian, University of Tehran

Hannah Budinoff, The University of Arizona

Philipp Gutruf, The University of Arizona

Dr. K. "Larry" Head, The University of Arizona

Enhancing Engineering Capstone Design Preparedness: A Systematic Curriculum Approach

Dr. Pun To (Douglas) Yung, Syracuse University

A Holistic Approach to Civil Engineering Capstone Design

Prof. Sarath Chandra Kumar Jagupilla P.E., Stevens Institute of Technology

Elizabeth O'Connell, Stevens Institute of Technology

Muhammad R. Hajj, Stevens Institute of Technology

W414A - Educational Research and Methods Division (ERM) Technical Session 22

2:00 P.M. - 3:30 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Yume Menghe Xu, Tufts Center for Engineering Education and Outreach

Design and Development of Survey Instrument to Measure Engineering Students' Perspectives on the Use of ChatGPT

Mr. Mohammad Faraz Sajawal, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Evaluating ChatGPT's Efficacy in Qualitative Analysis of Engineering Education Research

Dr. Xiaorong Zhang, San Francisco State University

Dr. Stephanie Claussen, San Francisco State University

Fatemeh Khalkhal, San Francisco State University

Yiyi Wang, San Francisco State University

Examining Students' Beliefs on the Use of ChatGPT in Engineering

Mohammad Faraz Sajawal, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Exploring the Use of Artificial Intelligence in Racing Games in Engineering Education: A Systematic Literature Review

An Nguyen, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Stumbling Our Way Through Finding a Better Prompt: Using GPT-4 to Analyze Engineering Faculty's Mental Models of Assessment

Amanda Ross, Virginia Polytechnic Institute and State University

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Kai Jun Chew, Embry-Riddle Aeronautical University, Daytona Beach

Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Perceptions of Engineering College Instructors and Their Students Towards Generative Artificial Intelligence (GenAI) Tools: A Preliminary Qualitative Analysis

Mr. Dhruv Gambhir, Nanyang Technological University

Mr. Yifan Xie, University College London

Dr. Ibrahim H. Yeter, Nanyang Technological University

Junaid Qadir, Qatar University

Andy Khong, Nanyang Technological University

W414B - Educational Research and Methods Division (ERM) Technical Session 23

2:00 P.M. - 3:30 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Boni Yraguen, Georgia Institute of Technology

A Systematized Literature Review on Problem-Solving in STEM Education Exploring the Impact of Task Complexity on Cognitive Factors and Student Engagement

Mr. Zain ul Abideen, Utah State University

Dr. Oenardi Lawanto, Utah State University

Mr. Talha Naqash, Utah State University

Dr. Angela Minichiello, Utah State University

How Aerospace and Mechanical Engineering Undergraduate Students Define and Develop Data Proficiency

Godwyll Aikins, Florida Institute of Technology

Catherine G. P. Berdanier, Pennsylvania State University

Dr. Kim-Doang Nguyen, Florida Institute of Technology

The Effects of COVID-19 on the Development of Expertise, Decision-Making, and Engineering Intuition

Madeline Roth, Bucknell University

Miss Joselyn Elisabeth Busato, Bucknell University

Dr. Elif Miskioglu, Bucknell University

Unmasking Cognitive Engagement: A Systematized Literature Review of the Relationships Between Students' Facial Expressions and Learning Outcomes

Mr. Talha Naqash, Utah State University, Logan

Dr. Oenardi Lawanto, Utah State University

Zain ul Abideen, Utah State University

Dr. Angela Minichiello, Utah State University

Visuospatial and Embodied Cognition in STEM Education: A Systematic Literature Review

Mrs. Fadhla B. Junus, Purdue University

Junior Anthony Bennett, Purdue University

Dr. Theresa Green, Purdue University

Dr. Jason Morphew, Purdue University

Prof. Ruth Wertz, Purdue University

When Is It Relevant? A Collaborative Autoethnographic Study by Engineering Students on Statistical Variability

Leslie Bostwick, Franklin W. Olin College of Engineering

Alex George, Franklin W. Olin College of Engineering

Trinity Lee, Franklin W. Olin College of Engineering

Dr. Zachary Del Rosario, Franklin W. Olin College of Engineering

W414C - Educational Research and Methods Division (ERM) Technical Session 24

2:00 P.M. - 3:30 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Fiona Levey, Worcester Polytechnic Institute

Board 72: Discourse Moves and Engineering Epistemic Practices in a Virtual Laboratory

Samuel B. Gavitte, Tufts University

Dr. Milo Koretsky, Tufts University

Dr. Jeffrey A. Nason, Oregon State University

FIE 2023: An Aggregate and Statistical Analysis of the Results and Feedback of the ASEE ERM Premier International Conference on Engineering Education

Hillary E. Merzdorf, Texas A&M University

Anna Stepanova, Texas A&M University

Dr. Saira Anwar, Texas A&M University

Mrs. Pouneh Abbasian, Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

Shifting Views in Changing Times: Towards a Mixed Methods Study Examining Faculty and Student Perceptions on Engineering Ethics

Prof. Bradley J. Sottile, The Pennsylvania State University

Unraveling the Nexus: Engineering Student Effort, Coding Protocols, and Academic Performance

Dr. Edwin Marte Zorrilla, University of Florida

Idalis Villanueva Alarcón, University of Florida

Dr. Darcie Christensen, Minnesota State University, Mankato

Dr. Jenefer Husman, University of Oregon

Dr. Matthew Charles Graham

Use of Theories in Extended Reality Educational Studies: A Systematic Literature Review

Dr. Kimia Moozeh, Queen's University

Dr. Paul Cameron Hungler P.Eng.

W415 - Frameworks and Comparative Analyses in ECE Education

2:00 P.M. - 3:30 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Ismail Uysal, University of South Florida; Scott Dunning, Virginia Polytechnic Institute and State University

This session explores innovative frameworks that improve learning processes and outcomes, and it provides critical comparative insights into different educational methodologies.

Digital Logic without Compromise in a Quarter-Based EE Curriculum

Dr. Mehmet Vurkac, Seattle University

Dr. Margarita D. Takach, Seattle University

Dr. Shiny Abraham, Seattle University

Shruti Singh, Seattle University

Evaluating the Effectiveness of Peer-Led Learning for a Hardware Course

Dr. Yan Zhang, University of South Florida

Dr. Jing Wang, University of South Florida

Systematic Review of Intervention Strategies in Introductory Circuits Education: Insights from ASEE Conference Papers from 2014 to 2023

Mr. Iman Shayegani, University of Cincinnati

Mr. Ibrahim Nihad Awartani, University of Cincinnati

David Allen Evenhouse, University of Cincinnati

Dr. So Yoon Yoon, University of Cincinnati

Dr. Gregory Warren Bucks, University of Cincinnati

WIP: The Impact of Formative Assessment on Students' Attitude, Anticipated Academic Performance, and Design Skills: Insights from Three Design-Oriented Electrical Engineering Courses

Dr. Muhammad S Zilany, Texas A&M University at Qatar

Iqra Yakub

W4195 - DSA Technical Session 8

2:00 P.M. - 3:30 P.M., A103, OREGON CONVENTION CENTER

Sponsor: Data Science & Analytics Constituent Committee (DSA)

Moderator: Navarun Gupta, University of Bridgeport

Using Data Science and Analytics for Feedback and Assessment

Investigating and predicting the Cognitive Fatigue Threshold as a Factor of Performance Reduction in Assessment

Mr. Amirreza Mehrabi, Purdue Engineering Education

Dr. Jason Morphew, Purdue University, West Lafayette

A Hybrid Approach to Natural Language Processing for Analyzing Student Feedback about Faculty Support

Neha Kardam, University of Washington

Dr. Denise Wilson, University of Washington

A Comparative Analysis of Natural Language Processing Techniques for Analyzing Student Feedback about TA Support

Neha Kardam, University of Washington

Dr. Denise Wilson, University of Washington

Sep Makhsous, University of Washington

Work-in-Progress: Fine-Tuning Large Language Models for Automated Feedback in Complex Engineering Problem-Solving

Mrs. Paula Francisca Larrondo, Queen's University

Prof. Brian M. Frank P.Eng., Queen's University

Julian Ortiz, Queen's University

W420 - Decision-Making in Engineering Ethics Education

2:00 P.M. - 3:30 P.M., G131, OREGON CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderator: Jude Okolie, University of Oklahoma

Decision-Making in Engineering Ethics Education

Collective vs. Individual Decision-Making in an Engineering Ethics Narrative Game

Ms. Tori N. Wagner, University of Connecticut

Prof. Michael F. Young, University of Connecticut

Dr. Daniel D. Burkey, University of Connecticut

Dr. Richard Tyler Cimino, New Jersey Institute of Technology

Dr. Scott Streiner, University of Pittsburgh

Dr. Kevin D. Dahm, Rowan University

Landon Bassett, University of Connecticut

Dr. Jennifer Pascal, University of Connecticut

Exploring the Role of Self-Efficacy in Entrepreneurial Decision-Making: An Action Research Study [WIP]

Mr. Tim Ransom, Clemson University

Alysa Rose Lozano, University of Kentucky

Dr. Betul Bilgin, The University of Illinois Chicago

Dr. Courtney Pfluger, Northeastern University

Dr. Sindia M. Rivera-Jiménez, University of Florida

Dr. Katie Cadwell, Syracuse University

Dr. Gisella R. Lamas Samanamud, University of Kentucky

The Challenges of Assessing In-the-Moment Ethical Decision-

Making

Ms. Tori N. Wagner, University of Connecticut

Dr. Daniel D. Burkey, University of Connecticut

Prof. Michael F. Young, University of Connecticut

Dr. Richard Tyler Cimino, New Jersey Institute of Technology

Dr. Scott Streiner, University of Pittsburgh

Dr. Kevin D. Dahm, Rowan University

Landon Bassett, University of Connecticut

Dr. Jennifer Pascal, University of Connecticut

The Development of a Student Survey on Macroethics in Aerospace Engineering [Work-In-Progress]

Dr. Corin L. Bowen, California State University, Los Angeles

Ms. Elizabeth Ann Strehl, University of Michigan

Megan Ennis, University of Michigan

Andrew Benham

Dr. Aaron W. Johnson, University of Michigan

W421 - Engineering Libraries Division (ELD) Technical Session 5

2:00 P.M. - 3:30 P.M., E145, OREGON CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Sarah Barbrow, University of Michigan

A Collaborative Approach to Implementing Design Thinking and Rapid Prototyping in a High School Engineering Camp

Ms. Rebecca Glasgow, University of Nevada, Reno

Rebranding the Library Through Engineering Outreach: Three Case Studies at the University of Waterloo

Ryan Ball, University of Waterloo

Ms. Rachel Figueiredo, University of Waterloo

Dr. Kate Mercer, University of Waterloo

Technical Standards in Engineering Education: Present Challenges Across Professional Sectors

Ms. Amy Kurr, University of Tennessee, Knoxville

Mr. Jimmy Landmesser Jr., UT-Battelle

The Role of University Research Libraries on Improving Education in Science, Technology, Engineering, Arts and Mathematics: A Focus on Institutional Collaborative Culture

Dr. Jason M. Keith, Mississippi State University

Lis Pankl, Mississippi State University

W423A - Engineering Technology Leadership Institute

2:00 P.M. - 3:30 P.M., WILLAMETTE 9, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Technology Division (ETD)

W423B - Engineering Engagement Activities

2:00 P.M. - 3:30 P.M., B114, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Brian Ngac, George Mason University; John Blake, Austin Peay State University

Designing a Series of Activities to Expose High School Students to Manufacturing

Mr. Yury Alexandrovich Kuleshov, Purdue University

Dr. Anne M. Lucietto, Purdue University

Impacts of Engineering Summer Camp at East Tennessee State University

Dr. Mohammad Moin Uddin P.E., East Tennessee State University

Dr. Keith V. Johnson, East Tennessee State University

Developing Career Pathways to Data Center Operations Through High School Summer Bridge Programs

Mr. Josh Labrie, Northern Virginia Community College

Christopher Russell

Mr. Samuel Aaron Snyder, Virginia Tech

Empowering Diversity in STEM: A Collaborative Approach between Engineering Technology and High Schools

Dr. Wei Vian, Purdue University, West Lafayette

Dr. Maher Shehadi, Purdue University, West Lafayette

Prof. Kevin D. Taylor, Purdue University, West Lafayette

W427A - First-Year Programs Division Technical Session 9: Student Growth & Professionalization

2:00 P.M. - 3:30 P.M., A106, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Carla Grimes; Sagnik Nath, University of California, Santa Cruz

This is a full paper session on student growth and professionalization during the first year.

But Wait! There's More! Developing Students Through a First-Year Course

Dr. Camilla M. Saviz P.E., University of the Pacific

Dr. Luke S. Lee P.E., University of the Pacific

Dr. Jeffrey Shafer, University of the Pacific

Dr. Navdeep Singh, University of the Pacific

Student-Generated Infographics and Videos for Learning about Professional Obligations and the Impact of Engineering on Society

Lawrence R. Chen, McGill University

Engagement in Practice: The Development of Skills and Competencies through Community Outreach Activities

Prof. Rodrigo Cutri, Maua Institute of Techonology

Dr. Hector Alexandre Chaves Gil, Instituto Mauá de Tecnologia

Cristiane Maria Barra Da Matta

Dr. Octavio Mattasoglio Neto

Growth of Student Awareness within a Discipline-Agnostic Introduction-to-Engineering Course

Dr. Gregory J. Mazzaro, The Citadel

Dr. Timothy Aaron Wood P.E., The Citadel

Dr. Kevin Skenes, The Citadel

Assessing the Motivation and Emotion Levels of First-Year Engineering Students Enrolled in an Academic Writing Course

Dr. Aparajita Jaiswal, Purdue University

Dr. Brainerd Prince, Plaksha University

Vinayak Krishan Joshi, Plaksha University

Engineering Major Selection: Impacting Factors and Facilitating Classroom Strategies

Dr. Shaghayegh Abbasi, University of Portland

Dr. Jordyn Wolfand, University of Portland

Dr. Kathleen Bieryla, University of Portland

W427B - First-Year Programs Division Technical Session 10: Curricular & Program Design

2:00 P.M. - 3:30 P.M., B115, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Lisa Lampe, University of Virginia; Katherine Ehlert, Miami University

A full paper session on the design of first year curricula and programs

Institutionalization Challenges for an NSF S-STEM Program

Dr. Robin A.M. Hensel, West Virginia University

Dr. Xinyu Zhang, Purdue University

Exploring Engineering Technology: A Multi-Disciplinary, Project-Based Introduction to Engineering Technology

Dr. Benito Mendoza, New York City College of Technology

Dr. Angran Xiao, New York City College of Technology

Muhammad Ummy, New York City College of Technology

Successes and Challenges of College-Wide Mentorship Programs

Dr. Nadiye O. Erdil, University of New Haven

Dr. Ronald S. Harichandran P.E., University of New Haven

Dr. Stephanie M. Gillespie, University of New Haven

Work in Progress: Development of a Bootcamp for Freshman Student Success During COVID-19 Transition

Dr. Noe Vargas Hernandez, The University of Texas Rio Grande Valley

Dr. Arturo A. Fuentes, The University of Texas Rio Grande Valley

Dr. Javier Ortega, The University of Texas Rio Grande Valley

Laura Benitez, The University of Texas Rio Grande Valley

Dr. Edna Orozco-Leonhardt, The University of Texas Rio Grande Valley

Classifying Survey Items related to Engineering Self-Concept for Application in First-Year Engineering

Ms. Jahnavi Dirisina, University of Oklahoma

Dr. Randa L. Shehab, University of Oklahoma

W433 - Krusty's Creations: Robotics and Electronics in Springfield STEAM, Hey Hey!

2:00 P.M. - 3:30 P.M., D140, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Yu-Fang Jin, The University of Texas at San

Antonio

Robotics as a pathway to engineering education

STEAM Outreach Incorporating K-12 Teachers and Youth Robotics Workshops

Mr. Norman Henry Philipp P.E., Ed.S., Pittsburg State University

Prof. Randy Winzer, Pittsburg State University

Byron Keith McKay

Eight-Year Journey with the FIRST Program: How Robots Build Kids

Justin Jin, TechnoWizards

Parker Olkowski

James Chengda Lu, BASIS Shavano

Vincent Liu, Brandeis High School

Mr. Ilias M Bakri

Aditya Rao

Yu-Fang Jin, The University of Texas, San Antonio

Isabel Xu

Understanding the Influence of a Week-Long Electrical and Computer Engineering Summer Camp on Middle School Students' Interests in STEM (RTP)

Joshua E. Katz, University of Illinois Urbana-Champaign

Mr. Robin Jephthah Rajarathinam, University of Illinois Urbana-Champaign

Yang Victoria Shao, University of Illinois Urbana-Champaign

Prof. Yuting W. Chen, University of Illinois Urbana-Champaign

Evaluation of High School Semiconductor and Microelectronics Summer Program (Evaluation)

Shauna Adams, Purdue University

Mr. Cristian Eduardo Vargas-Ordonez P.E., Purdue University

Dr. Morgan M. Hynes, Purdue University

Dr. Kerrie A. Douglas, Purdue University

Prof. Peter Bermel, Purdue University

Dr. David R. Ely, Ivy Tech Community College, Indianapolis

Hayley Joy Grisez

W433B - Duff's Dynamic Duo: Harnessing the Power of Teamwork for STEM Excellence!

2:00 P.M. - 3:30 P.M., C120, OREGON CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Merredith Portsmore, Tufts University

Teaming up to strengthen engineering education outcomes

Promoting STEM through Hands-on Sessions and Field Trips (Evaluation, Diversity)

Dr. Rafic Bachnak, Penn State University, Harrisburg

Dr. Brittany Anderson, Penn State University, Harrisburg

Cross-functional, Multi-organizational STEM Camp Partnership: Teaching Technology and Human-Centered Design in a Project-Based Curriculum (Other, Diversity)

Dr. Joshua D. Carl, Milwaukee School of Engineering

Ms. Amii LaPointe, Milwaukee School of Engineering

Dr. Cindy Miller, Milwaukee School of Engineering

Dr. Cory J. Prust, Milwaukee School of Engineering

Elizabeth Taylor, Milwaukee School of Engineering

Cultivating a Budding Engineer: A Marginalized Female High Schooler's Journey Towards an Engineering Career (Fundamental)

Dr. Cristina Diordieva, Nanyang Technological University

Dr. Adeel Khalid, Kennesaw State University

Sohini Gupta, Wheeler High School

Dr. Ibrahim H. Yeter, Nanyang Technological University

Lessons Learned through Multi-Year Team Teaching of an Engineering Course for Pre-College Students

Dr. Morgan R. Broberg, Purdue Applied Research Institute

Jose Capa Salinas, Purdue University

Susan Khalifah

W434 - DISTINGUISHED LECTURE: To: Society From: Tech, with Love

2:00 P.M. - 3:30 P.M., A105, OREGON CONVENTION CENTER

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

Speaker: Dr. Brooke Charae Coley, Arizona State University, Polytechnic Campus

In a recent intimate discussion of her book *Viral Justice*, Dr. Ruha Benjamin commented that "you cannot teach someone you do not love." Sitting with the power of this comment, Coley reflected on how such translates to the field of engineering, its processes, products, people, and innovations. Specifically, she wondered how each of these

aspects would be impacted if pursued through the lens of love. Historically, ideologies underpinning technical advancement have been treated disparately from constructs of love, justice, power, equity, and access. Yet, it is at the seams of engineering, technology, and these constructs where the greatest possibility of galvanizing a paradigm shift toward attainment of a sociotechnical future where all can thrive lies. Calling upon bell hooks' conceptualization of love across the components of knowledge, care, commitment, respect, trust, and responsibility, Coley interrogates how this framing can inform sociotechnical innovation for realizing a reimagined future. In this dialogue, connections will be made to understanding how engineering's pedagogical approaches, research agendas and development for good, partnering in purpose, and thinking in terms of global systems and impact can be re-envisioned through the lens of love.

Please join in this discussion as we dream together the possibilities of innovating through love.

W436 - Materials Division (MATS) Technical Session 3

2:00 P.M. - 3:30 P.M., B118, OREGON CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderators: Sarah Goodman, Stevens Institute of Technology (School of Engineering and Science); Jonathan Brown, The Ohio State University

A Scoping Review of Tools for Teaching Particle Science Engineering & Technology

Adrian Nat Gentry, Purdue University

Langdon A. Feltner, Purdue University

Paul Mort, Purdue University

Edu-tainment in STEM: Exploring the Feasibility of Television-based Educational Games in Engineering Education

Dr. Aroba Saleem, University of Florida

Idris Jeelani, University of Florida

Integrity Independent Lab into Project: A Modification Made to the Materials Science Lab Curriculum

Dr. Yljing Stehle, Union College

Stakeholders Analysis for Future Materials Engineering Education – from Good to Great

Dr. Luciana Lisa Lao, Nanyang Technological University, Singapore

Lay Poh Tan

W438A - MECH - Technical Session 13: Technological Advancements and Applications

2:00 P.M. - 3:30 P.M., C122, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Jenni Buckley, University of Delaware; Fabian Sorce

This session explores technological advancements and their applications in engineering education. Topics include teaching writing to engineering students, evaluating ChatGPT's reasoning capabilities, using ChatGPT for engineering reports, concept mapping in numerical methods, and the effectiveness of active learning on student self-efficacy, motivation, and performance in numerical methods.

Teaching Undergraduate Engineers to Write: Standalone Course in English versus Embedded Course in Engineering

Prof. Michael Alley, Penn State University

Dr. Robert J. Rabb P.E., Penn State University

Dr. Alyson G. Eggleston, Penn State University

Dr. Ibukun Samuel Osunbunmi, Penn State University

Dr. Siu Ling Leung, Penn State University

Dr. Stephanie Cutler, Penn State University

Evaluating ChatGPT's Engineering-Reasoning Capabilities and Constraints Through Examples from Mechanical-Engineering Education

Bingling Huang, California State University, Fullerton

Chan Lu, University of Georgia

Student Use of ChatGPT to Write an Engineering Report

Dr. Randall D. Manteufel, The University of Texas at San Antonio

Dr. Amir Karimi, The University of Texas at San Antonio

Concept Mapping for Cognition in Numerical Methods

Mr. Simon Njoroge, University of Washington

Arwen Elizabeth Pearson, University of Washington

Dr. Heather Dillon, University of Washington

Effectiveness of Active Learning Methods on Students' Self-efficacy, Learning Motivation and Academic Performance in

Numerical Methods in Mechanical Engineering

Dr. Golnaz Mirfenderesgi, The Ohio State University

Dr. Syedah Zahra Atiq, The Ohio State University

W438B - MECH - Technical Session 14: Advanced Pedagogical Techniques

2:00 P.M. - 3:30 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderators: Joshua Gargac, Ohio Northern University; Aldo Ferri, Georgia Institute of Technology

This session explores advanced teaching techniques in engineering education. It includes using LASSI to measure student independence, comparing Blooms Taxonomy-based assignments and project-based learning in fluid mechanics, faculty experiences with evidence-based practices, a framework for enhancing STEM-degree completion, and industry perspectives on troubleshooting in mechanical engineering.

Leveraging LASSI for Measuring ABET Student Outcome 7: Fostering Student Independence in Learning

Dr. Anahita Ayasoufi, Auburn University

Dr. Daniel Kevin Harris

Prof. Rick Williams, Auburn University

Ms. Golbou Makki

Dr. Amanda Sterling, Auburn University

Kyle D. Schulze, Auburn University

Ashu Sharma, Auburn University

Dr. Jeffrey C. Suhling, Auburn University

Dr. Daniel Kevin Harris

A Comparative Study on the Role of Bloom's Taxonomy-based Assignments and Project-based Learning on Student Performance in an Undergraduate Fluid Mechanics Course

Dr. Phapanin Charoenphol, Texas A&M University

Dr. Arkasama Bandyopadhyay, Texas A&M University

Chasing Assessment: The Faculty Experience of Trying to Implement Evidence Based Practices Well

Dr. Todd M. Fernandez, Georgia Institute of Technology

Mr. David Edward Torello, Georgia Institute of Technology

Enhancing STEM Degree Completion: A Framework for the Civil and Mechanical Engineering (CAM) Scholarship Project

Dr. Israd Hakim Jaafar, Utah Valley University

Dr. Matthew J. Jensen, Utah Valley University

Dr. Sean Tolman P.E., Utah Valley University

Amanda C. Bordelon, Utah Valley University

Bennington J. Willardson, Utah Valley University

Janis P. Raje

Industry Perspectives on Mechanical Engineering Troubleshooting

Patrick Daly, Worcester Polytechnic Institute

Mitra Varun Anand, Worcester Polytechnic Institute

Dr. Curtis Abel, Worcester Polytechnic Institute

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

W441 - Multidisciplinary Engineering Division (MULTI) Technical Session 8

2:00 P.M. - 3:30 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderator: Cynthia Barnicki, Milwaukee School of Engineering

Designing IDPro: The Process of Establishing an Interdisciplinary Projects Program for Undergraduates

Abdulrahman Alsharif, Virginia Polytechnic Institute and State University

Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University

Dr. David Gray, Virginia Polytechnic Institute and State University

Dr. Lisa D. McNair, Virginia Polytechnic Institute and State University

Transfer Learning from Math to Engineering and Using Scaffolds through Hands-on Learning to Build New Engineering Skills in Sensors and Systems Course

Dr. Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

Dr. Lifford McLauchlan, Texas A&M University, Kingsville

Dr. David Hicks

Dr. Adetoun Yeaman, Northeastern University

Maria Vasilyeva, Texas A&M University, Corpus Christi

Work-In-Progress (WIP): Exploring STEM Undergraduate Research Skills Development in Interdisciplinary Projects

Abdulrahman Alsharif, Virginia Polytechnic Institute and State

University

Dr. David Gray, Virginia Polytechnic Institute and State University

Dr. David B. Knight, Virginia Polytechnic Institute and State University

Ms. Isil Anakok, Virginia Polytechnic Institute and State University

Courses Designed to Support Students' Professional Development and Progress through a Multi-Year Co-Curricular Program, the Grand Challenges Scholars Program

Dr. Haolin Zhu, Arizona State University

Amy Trowbridge, Arizona State University

Forced Displacement and Engineering Education: Developing the Curriculum for a Course on a Global Crisis

Ms. Rana Hussein, Boston University

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W445 - Trends and Topics Related to ABET Accreditation

2:00 P.M. - 3:30 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

The panel will answer questions and provide input on navigating the ABET accreditation process from the prospective of Engineering Physics.

W451 - Women in Engineering Division (WIED) Technical Session 7 - Multi-URM Perspectives

2:00 P.M. - 3:30 P.M., F151, OREGON CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Sruthi Dasika, Purdue University at West Lafayette (COE)

The papers in this session address the intersections of women and multicultural perspectives and experiences.

Toward a Theoretical Model of a Successful Women and Minority Engineering Program (work in progress)

Dr. Laura J. Bottomley, North Carolina State University

Undergraduate Engineering Education: Creating Space for Multiply Marginalized Students

Dr. Janne Mishanne Hall, Morgan State University

Temberlenn Donald Ashton Hall, Northwestern Oklahoma State University

Latina Students Increased their Self-Confidence through a Research Engineering-Focused Program at a Hispanic-Serving Institution

Dr. Hilda Cecilia Contreras Aguirre, New Mexico State University

Luis Rodolfo Garcia Carrillo, New Mexico State University

Empowering Latin American Women Engineers: Bridging the Gender Gap Through a Network of Change

Dr. Vianney Lara-Prieto, Tecnologico de Monterrey

Maria Ileana Ruiz-Cantisani, Tecnologico de Monterrey

Marcela Paola Bentin

Maria Haydée Peralta, National University

Laura Romero

W457 - Faculty Development Division (FDD) Technical Session 11

2:00 P.M. - 3:30 P.M., E142, OREGON CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderators: Huan Gu, University of New Haven; Michelle Soledad, Virginia Polytechnic Institute and State University

Faculty Development Division Technical Session 11

Scholarship of Teaching and Learning (SoTL) Accelerator Program: Overview, Results, and Lessons Learned

Dr. Lisa Bosman, Purdue University

Dr. Katey Shirey, EduKatey

Karoline Jarr, Jarr Consulting

Dr. Nathalie Duval-Couetil, Purdue University

Rhea Dutta, Purdue University

The ICE Faculty Development Program (Integrating Curriculum with Entrepreneurial Mindset) – Then and Now

Dr. Andrew L. Gerhart, Lawrence Technological University

Dr. Maria-Isabel Carnasciali, Merrimack College

The Water Working Group at West Texas A&M University: A

Creative Means for Interdisciplinary Research Catalyzation and Faculty Development

Dr. Nathan Luke Howell, West Texas A&M University

Dr. Kenneth R. Leitch P.E., West Texas A&M University

Dr. Anirban Pal, West Texas A&M University

WIP: Piloting a Comprehensive Needs Assessment to Enhance Engineering Faculty Development

Dr. Megan Patberg Morin, North Carolina State University

Dr. Joel J. Ducoste, North Carolina State University

Dr. Evelyn C. Brown, North Carolina State University

W459 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 12

2:00 P.M. - 3:30 P.M., A107, OREGON CONVENTION CENTER

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

Unveiling Demographic Influences and Differential Career Preferences among Engineering Graduate Students: A Comparative Analysis of Mechanical, Electrical, and Computer Engineers

Dr. Ebony Omotola McGee, The Johns Hopkins University

Thema Monroe-White, Berry College

Dr. Shelly Engelman, Custom EduEval LLC

WIP Unseen: Examining the Link Between Disability Status and Students' Sense of Belonging in Undergraduate Engineering

Candice Wicker Bolding (CJ), Clemson University

Dr. Robert M. O'Hara, Clemson University

WIP: Centering Marginalized Students' Voices During the Development of a Faculty Toolkit for Inclusive Excellence in Engineering Education

Dr. Kelyn Rola, Southern Methodist University

Hannah Louis, Southern Methodist University

Mr. Alain Mota, Southern Methodist University

Ms. Kathy Michelle Hubbard, Southern Methodist University

WIP: Developing a Framework for Equity-Centered Engineering Curriculum and Instruction

Dr. Laura A. H. Wood, University of Michigan

Angie Kim, University of Michigan

Amber N. Williams, University of Michigan

Berenice A. Cabrera, University of Michigan

Hayley N. Nielsen, University of Michigan

Lu Zhou, University of Michigan

Dr. Grenmarie Agresar, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Dr. Lisa R. Lattuca, University of Michigan

Dr. Joi-Lynn Mondisa, University of Michigan

Dr. Erin A. Cech, University of Michigan

Dr. Erika Mosyjowski, University of Michigan

Dr. Steve J. Skerlos, University of Michigan

WIP: In Search of Community: A Collaborative Inquiry Among Neurodivergent Engineering Education Researchers

Dr. Marissa A. Tsugawa, Utah State University

Theo Sorg, Purdue University

Dr. Hector Enrique Rodríguez-Simmonds, Boston College

Sage Maul, Purdue University

Dr. Nadia N. Kellam, Arizona State University

Dr. Alice L. Pawley, Purdue University

Dr. Taylor V. Williams, Harding University

W469B - New Division and Section Officer Orientation—to be held virtually in July

2:00 P.M. - 3:30 P.M., OFFSITE, THIS MEETING WILL BE HELD VIRTUALLY IN JULY, STAY TUNED FOR A ZOOM INVITATION FROM HQ

Sponsor: ASEE Headquarters

New division and section officer orientation

W481A - Cultivating a Community Mindset to Support Inclusive Student Teaming

2:00 P.M. - 3:30 P.M., DESCHUTES BALLROOM C, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Alice L. Pawley, Purdue University at West Lafayette (COE); Stephanie Masta, Purdue University at West Lafayette (PPI); Austin Morgan Kainoa Peters, Purdue Engineering Education; Dr. Darryl Dickerson, Florida

International University; Dr. Matthew W. Ohland, Purdue University at West Lafayette (COE)

U.S. undergraduate engineering education needs to prepare students to work effectively in diverse teams to meet ABET standards. However, engineering instructors are not often adequately prepared to work in diverse teams themselves, let alone teach students how to do so, and many tools used to assess student teaming don't consider microaggressions or harassment from teammates as requiring particular specific identification or treatment. I-MATTER is designed to help close this gap. In this workshop, we will walk participants through thinking about healthy learning or teaming experiences they may have had, reflect on our responsibility for setting up safe learning experiences for our students and colleagues as well as discuss research insights from I-MATTER and two different models of how instructors could respond. We invite participants to reflect on the affordances of these models for teams they oversee, and ask them to make a plan for moving towards a new one upon returning to their home institutions.

W481B - Outsiders Only: A Community Conversation to Reclaim Space and Redefine Power

2:00 P.M. - 3:30 P.M., REGENCY CLUB, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Meagan C. Pollock, Engineer Inclusion

If you've ever felt like an outsider or cared about people who do, this 90-minute community conversation is for you. Aimed at members of the engineering education community, this event provides space for sharing experiences of exclusion and marginalization. Participants will engage in storytelling, followed by group discussions to dissect how institutional and systemic norms contribute to these feelings. The session will then shift to collaborative brainstorming, where attendees devise actionable strategies for fostering inclusivity in engineering education. This session amplifies underrepresented voices and empowers participants to drive change, ensuring diverse perspectives are not just heard but are integral in reshaping the organizational culture. Ideal for individuals who feel like outsiders and allies committed to equity, this session is a step toward a more inclusive and equitable professional community in engineering.

W543A - 2023/2024 Board of Directors Photo Shoot

3:00 P.M. - 3:15 P.M., REGENCY BALLROOM A , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Board of Directors

W505A - WIP: Student Success and Sustainability

3:45 P.M. - 5:15 P.M., C126, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Lorena Grundy, Tufts University; Duncan Mullins, University at Buffalo, The State University of New York

WIP: Chemical Engineering Faculty Attitudes Towards Evidence-based Instruction Practices and Growth Mindset

Dr. Mechteld Veltman Hillsley, Penn State University
Dr. Karen A. High, Clemson University
Dr. Stephanie Butler Velegol, Penn State University
Michael John Janik, Penn State University
Dr. Jennifer S. Brown, Clemson University

Work in Progress: Do Growth Mindset Interventions Work? Observations from a Case Study in a Chemical Engineering Core Course

Dr. Nagma Zerin, The Johns Hopkins University
Dr. Sakul Ratanalert, Columbia University

Evaluating Students' Belonging in Two Engineering Departments

Prof. Susan P. Gentry, University of California, Davis
Glaucia Prado P.E., University of California, Davis

Empowering Students to Self-Select Resources Befitting Their Individual Learning Styles in a Reactor Design Engineering Course

Dr. Elizabeth Michelle Melvin, Clemson University

Work-In-Progress: Integrating Sustainability Across the Chemical Engineering Curriculum

Dr. Christopher V.H.-H. Chen, Columbia University
Dr. Courtney Pfluger, Northeastern University

Work-in-Progress: Implementation of Standards-based Grading in a Mass Transfer/Kinetics Course

Dr. Alison Leigh Banka, University of Georgia

Work in Progress: Implementation of a Curricular Development Project for Experiential Learning in a Senior Capstone Product-Design Course

Dr. Chris Barr, University of Michigan

Taylor Ashley Dotto, University of Michigan

Joseph Gilbert Restivo, University of Michigan

Christina Said, University of Michigan

Rinrada Watchara, University of Michigan

Laura Hirshfield, University of Michigan

Elaine C. Wisniewski, University of Michigan

Xiaoxia Nina Lin, University of Michigan

W505B - Inclusivity, Mentorship, and Entrepreneurial Thinking

3:45 P.M. - 5:15 P.M., A105, OREGON CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Tracy Carter, Northeastern University; Victoria Goodrich, University of Notre Dame

Designing Inclusive Teamwork Activities to Improve International Masters Students' Teamwork Skills in Chemical Engineering

Ms. Ya He, University of Sheffield

Dr. Mohammad Zandi P.E., University of Sheffield

Enhancing Entrepreneurial Minded Learning of Process Control and Heat Transfer Concepts Using Micromoments and Concept Maps

Prof. Erick S. Vasquez-Guardado, University of Dayton

Prof. Ricardo Gómez González, Universidad Autonoma de Nuevo Leon

Prof. Jean M. Andino Ph.D., P.E., Arizona State University

Prof. Nilza D. Aples, University of Technology, Jamaica

Prof. Xiaojing Yuan, University of Houston

Building a Great Student Chapter: Reflections on Workshop Activities Using Entrepreneurial Mindset

Prof. Matthew W. Liberatore, University of Toledo

Intrinsic Benefits of a Chemical Engineering Alumni Student Mentoring Program

Dr. Heather L. Walker, University of Arkansas

Dr. Edgar C. Clausen, University of Arkansas

Dr. Keisha B. Walters, University of Arkansas

Alumni Engagement and Mentoring Integrated in the Chemical Engineering Curriculum

Dr. Joaquin Rodriguez, University of Pittsburgh

W506A - Civil Engineering Division (CIVIL) Technical Session - Effective Teaching 4

3:45 P.M. - 5:15 P.M., E144, OREGON CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Tonya Nilsson, Santa Clara University; Haritha Malladi, University of Delaware

A Case Study on Using a Mini Project in Structural Material Testing to Address ABET Student Outcomes

Dr. Lekshmi Sasidharan, University of Arkansas

Tariq Sweidan, University of Arkansas

Ms. Abigail Mayhan, University of Arkansas

Pratik Ghimire, University of Arkansas

Suman Kumar Mitra, University of Arkansas

Mass Timber Structural Engineering Curriculum: Assessment of Current Teaching and Resource Needs

Cade Person, Michigan State University

Dr. Kristen Sara Cetin P.E., Michigan State University

Christiana Kiesling, Michigan State University

George H. Berghorn, Michigan State University

Relationships Between Student Self-Assessment Ability and Performance

Col. Joel Sloan, United States Air Force Academy

Timothy Frank, United States Air Force Academy

Sticking Points: Reasons Why Civil Engineering Students Make Errors Solving Engineering Mechanics Problems

Major Brett Rocha, United States Military Academy

Dr. Kevin Francis McMullen, United States Military Academy

Dr. Adrian Owen Biggerstaff, United States Military Academy

Capt. Robert Hume, United States Military Academy

Dr. Eric B. Williamson P.E., United States Military Academy

That Was a Blast! Air Cannons as an Introduction to Blast Loading of Structures

Dr. Charles Riley, Oregon Institute of Technology

W513 - Design in Engineering Education Division (DEED) - Student-Centered Approaches in Design Education

3:45 P.M. - 5:15 P.M., B116, OREGON CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Jeremy Edmondson, North Carolina State University at Raleigh

Building the Engineering Identity of the Lower-Division Engineer: A Formal Model for Informal Peer-to-Peer Mentorship and Student Leadership through Undergraduate Student-Led Experiential Learning

Dr. Tela Favaloro, University of California, Santa Cruz

"Fail a little, succeed a lot": How Experiential Learning Influenced Civil Engineering Students' Approach to Coursework

Dr. Noel Hennessey, The University of Arizona

Dr. Kevin E. Lansey, The University of Arizona

Dean Papajohn

Tyler Jean Le Peau, The University of Arizona

Communicating Effectively with a Range of Audiences: Audience Avatars in Engineering Design Education

Dr. Amit Shashikant Jariwala, Georgia Institute of Technology

Dr. Jill Fennell, Georgia Institute of Technology

Christian Sims, Georgia Institute of Technology

Devesh Ranjan, Georgia Institute of Technology

Dr. Devesh Ranjan, Texas A&M University

Engineering the Next Generation of Innovators: Analysis of Students' Innovation Habits

Hadear Ibrahim Hassan, Texas A&M University

Mr. Luis Angel Rodriguez, Texas A&M University

Dr. Astrid Layton, Texas A&M University

David Christopher Seets, Texas A&M University

M. Cynthia Hipwell, Texas A&M University

W514A - Educational Research and Methods Division (ERM) Technical Session 25

3:45 P.M. - 5:15 P.M., C123, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Andrea Surovek, South Dakota School of Mines and Technology

Argumentation Framework as an Educational Approach for Supporting Critical Design Thinking in Engineering Education

Miguel Alfonso Feijoo-Garcia, Purdue University

Dr. Brittany Newell

Dr. Alejandra J. Magana, Purdue University

Mark Holstrom, Purdue University

Design Conceptualization over Multiple Design Courses

Caitlyn Berryhill, California Polytechnic State University, San Luis Obispo

Dr. Amanda Clara Emberley, California Polytechnic State University, San Luis Obispo

Developing a Human-Centered Engineering Design Self-Assessment Survey

Mr. Alexander Pagano, University of Illinois at Urbana - Champaign

Ms. Taylor Tucker Parks, University of Illinois at Urbana - Champaign

Mr. Saadeddine Shehab, University of Illinois at Urbana - Champaign

Engineering Design Process through Game-Based Learning for Freshmen Engineering Students

Ms. Laura Ngoc Nhi Nguyen, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Jude Okolie, University of Oklahoma

Mr. Moses Olayemi, University of Oklahoma

Eye-Tracking Analysis of Problem-Solving Behavior in Design Tasks in Undergraduate Engineering: A Comparison of High and Low Spatial Visualizers

Dr. Muhammad Asghar, University of Cincinnati

Dr. Sheryl A. Sorby, University of Cincinnati

Dr. Clodagh Reid, Technological University of the Shannon

Dr. Gibin Raju, University of Cincinnati

Student Perceptions and Attitudes Towards Engineering Design in Work-Integrated Learning Contexts

Mr. Jordan Nickel, University of Waterloo

Mr. Gregory Litster, University of Toronto

Mr. Christopher Rennick, University of Waterloo

Dr. Ada Hurst, University of Waterloo

Dr. Carol Hulls P.Eng., University of Waterloo

W514B - Educational Research and Methods Division (ERM) Technical Session 26

3:45 P.M. - 5:15 P.M., D136, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Ruben Lopez-Parra, Purdue University at West Lafayette (COE)

A Synthesis of Discoveries Spanning Ten Semesters of HyFlex

Dr. Lakshmy Mohandas, Purdue University
Prof. Nathan Mentzer, Purdue University
Ms. Adrie Koehler
Elnara Mammadova, Purdue University
Mr. Shawn Farrington, Purdue University

Analyzing Trends in Curricular Complexity and Extracting Common Curricular Design Patterns

Sushant Makarand Padhye, University of Cincinnati
Dr. David Reeping, University of Cincinnati
Nahal Rashedi, University of Cincinnati

Appraising the Impact of Dialogical Pedagogy and Curriculum Co-Design: A Conversation Between the Humanities and Engineering

Dr. Brainerd Prince, Plaksha University
Dr. Siddharth, Plaksha University
Ms. Rukmani Keshav, Plaksha University

Designing and Conducting Research Using an Ethnographic Approach to Identify Pedagogical Practices in Engineering Education

Dr. Hye Yeon Lee, Georgia Institute of Technology
Prof. Joseph M. LeDoux, Georgia Institute of Technology

Enhancing Chemistry Education through the LHETM Model: A Structured Approach to Knowledge Acquisition and Application

Dr. Xinfeng (Kevin) Quan, Westlake University
Chaoyi Wang, Zhejiang Normal University
Chenhui Zhang, Self-employed

Evaluating and Comparing Delivery Strategies for Hardware-Based Online Labs

Christopher A. Sanchez, Oregon State University
Kahlan Fleiger-Holmes, Oregon State University
Brian John Zhang, Oregon State University
Prof. Naomi T. Fitter, Oregon State University

W514C - Educational Research and Methods Division (ERM) Technical Session 30

3:45 P.M. - 5:15 P.M., C124, OREGON CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Alexandra Werth, Cornell University

Breaking the Stigma: Fostering Mental Health Resilience in Engineering—A Systematic Literature Review

Mr. Hoc T. Nguyen, University of Oklahoma
Dr. Javeed Kittur, University of Oklahoma

Applying Personal Strengths: Building Well-Being and Resilience Strategies in an Undergraduate Wellness Course

Julianne Latimer, Georgia Institute of Technology
Dr. Mary Lynn Realff, Georgia Institute of Technology
Clara Blue Templin, Georgia Institute of Technology
Jill Fennell, Georgia Institute of Technology
Dr. Christie Stewart, Georgia Institute of Technology
Lesley Baradel, Georgia Institute of Technology

Assessing the Reliability of a Tactile Spatial Ability Instrument for Non-Visual Use in Blind and Low Vision Populations

Daniel Kane, Utah State University
Ms. Natalie L. Shaheen
Jace Russell Harris, Utah State University
Rosemary Yahne, Utah State University
Dr. Wade H. Goodridge, Utah State University

The Relation between Students' Sense of Belongingness, Gender, and Their Resistance to Active Learning

Dr. Jenefer Husman, University of Oregon
Dr. Matthew Charles Graham
Kathryn Anne Jacobson, University of Oregon
Dr. Cynthia J. Finelli, University of Michigan
Dr. Maura Borrego, University of Texas at Austin
Dr. Michael J. Prince, Bucknell University
Ms. Lea K. Marlor, University of Michigan
Madison E. Andrews, University of Texas at Austin

Nonbinary Engineering Students' Access to Resources Through Cis* and Trans* Alters

Adrian Nat Gentry, Purdue University

Dr. Julie P. Martin, University of Georgia

Dr. Kerrie A. Douglas, Purdue University

Prof. Eric Holloway, Purdue University

Cole Thompson, Purdue University

W515 - Technical Proficiency and Cybersecurity Awareness in ECE Education

3:45 P.M. - 5:15 P.M., D138, OREGON CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Benjamin Flores, University of Texas at El Paso; Zulal Sevkli, Miami University

This session showcases developments in ECE technical skills and cybersecurity awareness, covering troubleshooting, cybersecurity education, robotics, and PLC controls.

Circuit Troubleshooting Techniques in an Electrical and Computer Engineering Laboratory

Mr. Michael Kinsel, University of Virginia

Caroline Elizabeth Crockett, University of Virginia

Dr. Natasha Smith, University of Virginia

Dr. George Prpich, University of Virginia

Empowering Community-Driven Cybersecurity Education: A Framework for the Cybersecurity Ambassador Program

Dr. Doug W. Jacobson, Iowa State University of Science and Technology

Enhancing Student Learning in Robot Path Planning Optimization through Graph-Based Methods

Timothy Sellers, Mississippi State University

Dr. Tingjun Lei, Mississippi State University

Prof. Chaomin Luo, Mississippi State University

Prof. Zhuming Bi, Purdue University, Fort Wayne

Prof. Gene Eu Jan, Tainan National University of the Arts

PLC in Industrial Controls Course

Dr. Jiahui Song, Wentworth Institute of Technology

Dr. Douglas Eric Dow, Wentworth Institute of Technology

Dr. Xiaobin Le, Wentworth Institute of Technology

W521 - Engineering Libraries Division Extended Executive Committee Meeting

3:45 P.M. - 5:15 P.M., COLUMBIA 1, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: Engineering Libraries Division (ELD)

Moderators: Chelsea Leachman, Washington State University; Margaret Phillips, Purdue University at West Lafayette (COE)

This meeting is for all the chairs of ELD committees.

W523A - Hands-On Learning in ET II

3:45 P.M. - 5:15 P.M., B113, OREGON CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderators: Billy Gray, Tarleton State University; Ashish Agrawal, Rochester Institute of Technology (CET)

Implementing PackML in the Engineering and Technology Curriculum

Dr. Maged Mikhail, Purdue University Northwest

Using Brightspace to Create Multi-Format Lab Manuals to Enhance Student Performance

Dr. Jack Li, Purdue University, Fort Wayne

Development of Design, Control, and Data Acquisition Modules for Fluid Power Education

Ms. Helene Jabbour, Purdue University

Israa Azzam, Purdue University

Ms. Isaac Elí Lago, Tecnologico de Monterrey

Dr. Farid Breidi, Purdue University

Dr. Jose M. Garcia, Purdue University

Automating an Industrial Dishwashing System Using Hardware-in-the-Loop PLC Simulation with Factory I/O

Paniz Khanmohammadi Hazaveh, Michigan Technological University

Dr. Nathir Rawashdeh, Michigan Technological University

W525 - Environmental Engineering Division (ENVIRON) Technical Session 3 - Innovative Pedagogy

3:45 P.M. - 5:15 P.M., D133, OREGON CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Andrew Pfluger, United States Military Academy; Andrew Schulz; Cindy Anderson

Session includes projects that center on innovative pedagogical approaches in environmental engineering courses or curricula.

Using Micromoments and Concept Maps to Enhance Entrepreneurially Minded Learning of Indoor Air Pollution Control

Prof. Jean M. Andino Ph.D., P.E., Arizona State University

Prof. Erick S. Vasquez-Guardado, University of Dayton

Prof. Ricardo Gomez Gonzalez, Universidad Autonoma de Nuevo Leon

Dr. Xiaojing Yuan, University of Houston

Prof. Nilza D. Aples, University of Technology, Jamaica

Oral Examinations in Environmental Engineering Design Courses

Prof. James N. Jensen, University at Buffalo

Students' Metacognitive Regulation Strategies in Written Reflections within Third-Year Introductory Environmental Engineering Course

Anu Singh, University of Nebraska, Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

Grace Panther, University of Nebraska, Lincoln

Mr. Logan Andrew Perry, University of Nebraska, Lincoln

Continuing Evaluation of Undergraduate Engineering Students' Perspectives on Renewable Energy: A Two-Year Study

Mr. Hang Song, Auburn University

Dr. John T. Solomon, Tuskegee University

Dr. Lauren E. Beckingham, Auburn University

Karen McNeal, Auburn University

Dr. Kelly Lazar, Clemson University

Identifying Shared Meaning to Enhance a Collaborative Teaching Culture

Brooke Lahneman, Montana State University

Susan Gallagher, Montana State University

Dr. Catherine M. Kirkland, Montana State University

Dr. Kathryn Plymesser, Montana State University

Ellen Lauchnor, Montana State University

Amanda Hohner, Montana State University

Adrienne Phillips, Montana State University

Dr. Craig R. Woolard, Montana State University

Dr. Otto R. Stein, Montana State University

W527A - First-Year Programs Division Conference Debrief

3:45 P.M. - 5:15 P.M., B114, OREGON CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Joshua Hertz, Northeastern University

As the conference winds down, come to this open discussion session for casual conversation and debrief.

W534 - Accountability and Stewardship

3:45 P.M. - 5:15 P.M., E141, OREGON CONVENTION CENTER

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

Moderator: Elizabeth Cady, National Academies of Sciences, Engineering, and Medicine

Liberal Education/Engineering & Society Division (LEES) Paper Session

Do Social Justice Case Studies Affect Engineering Professional Responsibility?

Dr. Gail Baura, Loyola University, Chicago

Prof. Matt Miller, Loyola University, Chicago

Examining Climate Anxiety and Sustainability Engagement in the Undergraduate Engineering Student Population

Dr. Lisa Romkey, University of Toronto

Project DECIDE: A K12 Civics and Engineering Education Curricular Partnership (Works in Progress)

Dr. Tamecia R. Jones, North Carolina State University

Siddika Selcen Guzey, Purdue University

Chrystal S Johnson

Siddika Selcen Guzey, Purdue University

Frankenstein Lives! Teaching Mary Shelley's Novel in the Engineering Classroom

Dr. Benjamin J. Laugelli, University of Virginia

Contextualizing Technological Stewardship: Origins and Implications of an Approach to Responsible Tech Development

Dr. Kari Zacharias, University of Manitoba
Mr. Renato B. Rodrigues, University of Manitoba
Paula Rodrigues Affonso Alves, University of Manitoba
Dr. Jillian Seniuk Cicek, University of Manitoba

W541 - Multidisciplinary Engineering Division (MULTI) Technical Session 9

3:45 P.M. - 5:15 P.M., D139, OREGON CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderator: Duncan Davis, Northeastern University

Leading College Engineering Competition Teams as an Informal Learning Experience Itself

Dr. Micah Lande, South Dakota School of Mines and Technology

Cost-Effective Research Platform for Child-Robot Interaction Studies Using a Smartphone-Based Humanoid Robot with Double Gesture Arms

Dr. Sumito Nagasawa, Shibaura Institute of Technology
Prof. Hatsuko Yoshikubo, Shibaura Institute of Technology

Exploring Artificial Intelligence Tools for Materials Science in Engineering: A Work-in-Progress in Undergraduate Classroom Integration

Rackan Sami Mansour, Texas A&M University at Qatar
Osama Desouky, Texas A&M University at Qatar
Marwa AbdelGawad, Texas A&M University at Qatar

Multidisciplinary Art and Engineering Collaboration in the Design of "Bee My Guide: An Interactive Journey Back Home"

Prof. Mary Ann Weitnauer, Georgia Institute of Technology
Dr. Jacqueline Rohde, Georgia Institute of Technology
Prof. Timothy Brothers, Georgia Institute of Technology
Martta Sareva, Hope-Hill Elementary School

W542 - NEE Technical Session 4 - Assessments: Grading and deadlines

3:45 P.M. - 5:15 P.M., C125, OREGON CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Christopher Russell, Purdue University at West Lafayette (COE)

What Do Grades Mean? A Scoping Literature Review on Students' Perceptions of Grades and Grading Practices

Dr. Cassie Wallwey, Virginia Polytechnic Institute and State University
Dr. Michelle Soledad, Virginia Polytechnic Institute and State University
Carol Geary, Virginia Polytechnic Institute and State University

Grading for Equity in Engineering Education: A Case Study with Implementation Examples

Dr. Jennifer Mott, California Polytechnic State University, San Luis Obispo

Relaxed Deadlines: Do They Provide an Unfair Advantage?

Dr. Bridget M. Smyser, Northeastern University

WIP: Exploring Strategies that Allow Multiple Attempts on Formative Assessments in an Introduction Programming Course

Dr. Bob Schaffer, Mission College

W543 - ASEE Nominating Committee Meeting

3:30 P.M. - 5:00 P.M., REGENCY BALLROOM A , HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Board of Directors

ASEE Nominating Committee Meeting

W559 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 14

3:45 P.M. - 5:15 P.M., A107, OREGON CONVENTION CENTER

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

Work in Progress: Experiences of Uncertainty in Sociotechnical Small-Group Undergraduate Discussions

Fatima Rahman, Tufts Center for Engineering Education and Outreach
Dr. Kristen B. Wendell, Tufts University

Dr. Chelsea Joy Andrews, Tufts University

Work in Progress: Facilitating Difficult Conversations in Computing Contexts

Dr. Yerika A Jimenez, Duke University

Shaundra Bryant Daily, Duke University

Dr. Alicia "Nicki" Washington, Duke University

Dr. Jessica Sperling

Adrian G. Brown, Duke University

Cecilé Sadler, Massachusetts Institute of Technology

Work in Progress: Grading through a Capability Lens

Dr. Stewart Thomas, Bucknell University

Sarah Appelhans, Lafayette College

Dr. Michael S. Thompson, Bucknell University

Dr. Rebecca Thomas, Bucknell University

Philip Asare, University of Toronto

Prof. Robert M. Nickel

Dr. Alan Cheville, Bucknell University

ChatGPT as a Tool for Equitable Education in Engineering Classes

Sourojit Ghosh, University of Washington

Reflecting on Adapting Visual-Oriented Classes for Blind and Low-Vision Students

Sourojit Ghosh, University of Washington

Kunal V. Mehta, University of Washington

Alainna Brennan Brown, University of Washington

Maxwell Coppock, University of Washington

Dr. Sarah Marie Coppola, University of Washington

W577 - ETC Business Meeting

3:45 P.M. - 5:15 P.M., WILLAMETTE 1B, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsors: Engineering Technology Council (ETC); Engineering Technology Division (ETD)

W581 - CDEI Unites: Empowering DEI Across ASEE

3:45 P.M. - 5:15 P.M., MULTNOMAH ROOM, HYATT REGENCY PORTLAND (HQ HOTEL)

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderator: Meagan Pollock, Engineer Inclusion

You are invited to "CDEI Unites," an event that blends essential Commission for Diversity, Equity, and Inclusion business with the ongoing evaluation and advancement of diversity, equity, and inclusion within the organization. Building upon the unified vision forum of 2023, this session serves as a key platform for the ASEE community to engage in reflective and proactive discussions on DEI.

In this interactive environment, members from all divisions, sections, and zones will come together to foster meaningful collaborations and expand DEI efforts. The session will facilitate open discussions, enabling attendees to share a broad spectrum of experiences, successes, challenges, and lessons learned in implementing DEI initiatives within their units and across ASEE.

A significant focus will be on gathering feedback and formulating new recommendations to further develop and refine ASEE's DEI strategies.The outcome will include the initiation of a comprehensive report to document these insights, serving as a valuable tool for guiding ASEE's ongoing DEI journey.

We encourage all ASEE members to join this session, regardless of their previous involvement in DEI efforts. Your insights and contributions are pivotal in shaping a more inclusive and equitable ASEE. Through this collaborative effort, we aim to create a consistent and impactful approach to driving and tracking DEI progress within our organization. Learn more about the ongoing efforts of this unifying initiative, review the project history and the 2023 roundtable report here: https://diversity.asee.org/deicommittee/dei-forum

About the Commissions:

The ASEE Board created and hosts two commissions: The Commission on Diversity, Equity, and Inclusion and the Commission on P-12 Engineering Education. Commissions support ASEE's strategies and priorities by activating the vast network that is all of ASEE and are open to everyone to participate. All divisions, sections, and units are invited to have a representative on each commission.

Session Objectives

Integrate and Advance DEI Initiatives:

Merge essential CDEI business with strategic discussions to advance diversity, equity, and inclusion across all ASEE divisions, building upon the insights from the 2023 Unified Vision Forum.

Foster Collaborative DEI Dialogue and Planning:

Facilitate open, inclusive discussions among ASEE members from various divisions, encouraging the sharing of experiences and lessons learned, with a focus on developing actionable, collaborative DEI strategies and recommendations.

-Lay Groundwork for Continuous DEI Improvement:

Initiate the creation of a comprehensive report that captures the current state of DEI in ASEE, serving as a foundation for ongoing evaluation, feedback, and enhancement of DEI efforts within the organization.

Session Objectives

-Merge CDEI Business with DEI Advancement:

Integrate the key business aspects of the Commission for Diversity, Equity, and Inclusion with broader DEI goals and initiatives within ASEE.

-Build on the 2023 Unified Vision Forum:

Utilize the foundation and insights gained from the 2023 forum to inform and guide current discussions and strategies.

-Foster Cross-Division Collaboration:

Encourage and facilitate meaningful collaborations and discussions across all divisions, sections, and zones of ASEE to broaden and deepen the impact of DEI efforts.

-Facilitate Open and Inclusive Discussions:

Create a welcoming environment where members can share their experiences, successes, challenges, and lessons learned in implementing DEI initiatives, promoting a culture of openness and learning.

-Develop Actionable DEI Recommendations:

Gather feedback and insights from participants to formulate practical and impactful recommendations that can further advance DEI within ASEE.

-Initiate a Comprehensive DEI Report:

Begin the process of compiling a comprehensive report that captures the current DEI landscape in ASEE, including progress made, challenges faced, and future opportunities.

-Engage a Broad Spectrum of ASEE Members:

Encourage participation from a diverse range of ASEE members, regardless of their previous involvement in DEI initiatives, to ensure a wide array of perspectives and experiences are represented.

-Establish a Framework for Ongoing DEI Efforts:

Lay the groundwork for a sustainable and effective approach to DEI, which includes regular assessment, feedback, and revision of strategies and actions.

W669 - 2024 Program Chair & Co-Chair Appreciation Celebration

5:30 P.M. - 6:30 P.M., SKYVIEW TERRACE , OREGON CONVENTION CENTER

Sponsor: ASEE Headquarters

ASEE invites all 2024 Chairs and Co-Chairs to this appreciation celebration.

Free ticketed event

W743 - ASEE President's Farewell Reception

6:30 P.M. - 8:00 P.M., PORTLAND BALLROOM A - GENERAL SESSION , OREGON CONVENTION CENTER

Sponsor: ASEE Board of Directors

Speakers: Dr. Doug Tougaw P.E., Valparaiso University; Dr. B "Grant" Crawford P.E., Quinnipiac University

Join us to celebrate the achievements of 2023–2024 President Doug Tougaw and welcome the vision and aspirations of 2024–2025 President Grant Crawford. The ceremonial transfer of the gavel from the outgoing to the incoming ASEE President signifies continuity and the promising future of our association.