About the Women in Engineering Program Day
The Women in Engineering Program Day (WIEP) pays homage to WEPAN’s origins as an organization founded by Women in Engineering Program practitioners. Our second annual WIEP builds on the inaugural theme calling us to remember our roots and convenes practitioners and other stakeholders in the advancement of women in engineering to network, share resources, and discuss best practices for supporting women in engineering at higher education institutions.

About WEPAN
WEPAN was founded as a non-profit educational organization in 1990. It is the nation’s first network dedicated to advancing cultures of inclusion and diversity in engineering higher education and workplaces. WEPAN connects people, research and practice. It offers powerful initiatives, projects and professional development that equips advocates with the tools to create sustainable, systems-level changes that allow ALL in engineering to thrive.
Dr. Tiffany Smith (she/her/hers) is a citizen of the Cherokee Nation of Oklahoma and a descendent of the Muscogee Nation. She joined AISES in August 2021 as the director of research. In this role, Dr. Smith manages several grant-supported, research-related projects as well as conducts research focused on Indigenous students and professionals in STEM disciplines.

Dr. Smith completed a BA in public relations and sociology, and an MEd and PhD in adult and higher education/student affairs administration, all from the University of Oklahoma. She currently serves as adjunct faculty for the Higher Education Administration graduate program at the University of Alabama at Birmingham. She has over 16 years’ experience in multiple aspects of student affairs, including career development, diversity, equity and inclusion efforts, first-year experience and student engagement at both a public and private institution.

Active in several notable professional organizations, Dr. Smith has presented nationally on Indigenous higher education topics for NASPA, the National Indian Education Association, the Native American Student Advocacy Institute, the American Educational Research Association and the Association for the Study of Higher Education. For NASPA, she recently served on the 2022 Conference Leadership Committee, the 2022 Power and Place Symposium Planning Committee, and continues to serve as national chair for the Indigenous Peoples Knowledge Community, where she developed and hosts a national podcast On Sacred Ground. Her dissertation entitled Indigenizing the Academy: A Storytelling Journey to Determine Pathways for Native Student Success in Engineering received the 2021 Melvene D. Hardee Dissertation of the Year award from NASPA. Her scholarship focuses on applying Indigenous methodologies to decolonizing STEM academic and workforce spaces. She hopes to contribute to dismantling the deficit narrative and holding institutions accountable for providing culturally relevant support and space for Indigenous students.

Dr. Smith grew up in Midwest City, Okla. In her free time, she enjoys traveling, hiking, spending time at the lake, and having fun adventures with her partner, Zach, and her two children, Tytan (age seven) and Mya (age two).
Schedule

11:00pm-11:50pm | Opening Keynote

11:50pm-12:00pm | Break

12:00pm-1:00pm | Theme: Creating Conditions for Retention and Success
“Weaving Women into Engineering vs. Weeding Them Out”

“What’s the Secret to Engagement and Retention?: Findings from 4 Established WIE Programs”

1:00pm-1:10pm: Break

1:10pm-2:10pm | Theme: Confronting the Impacts of Inequity and Moving Toward Change
“The Use of an Existential Psychological Framework to Better Conceptualize the Minoritized Experience: A Novel Way to Help Improve ADVANCE Project Outcomes”

2:10pm-2:40pm: Break

2:40pm-4:00pm | WIE/WISE Student Panel
“Perspectives of WIE and WISE Students from Across the US”

4:00-4:10pm: Break

4:10-5:10pm | Theme: Scaffolding for the Success of Women in Engineering
“From a WIE Director's Perspective: Supporting Women Engineering Majors”

“A Framework and Funding Guide to Help Women in Academia Commercialize Research, Get Connected to Resources and Find Funding that Fits”

5:10-5:20pm Break

5:20pm-6:00pm | High-5s for Change
“Changing the Negative Discourse Regarding Women Belonging and Becoming Engineers”

“Advancing Inclusion for Women in STEM Graduate Programs”
“Weaving Women into Engineering vs. Weeding Them Out”

Jenna Carpenter shares her goals of fostering a “weed in” culture in engineering education, as opposed to the traditional “weed out” approach, which can inhibit underrepresented groups from pursuing engineering. Under Carpenter, the American Society for Engineering Education (ASEE) will partner with the Engineering Research Visioning Alliance and National Academy of Engineering for various projects, from virtual listening sessions for engineering students to hosting a conference in the fall to help institutions do a better job of recruiting, admitting, and retaining a wider array of students in terms of pre-college preparation and opportunities.

Speaking to the *Campbell University News* this summer at the start of her ASEE presidential term, she said she was “looking forward to working with ASEE’s almost 10,000 members to rethink how universities can use research-based best practices to recruit a more diverse cohort of students to engineering . . . In particular, collectively we need to change our curricular, advising and professional development approaches to ensure that students have multiple entry pathways to an engineering degree, that we support their success, and that they find engineering a welcoming major with exciting career options for them.”

**Jenna Carpenter, Ph.D.**

*President, American Society for Engineering Education; Dean and Professor, School of Engineering, Campbell University*

Dr. Jenna Carpenter is Founding Dean and Professor of Engineering at Campbell University and the current ASEE President. An expert on issues impacting success of women in STEM and innovative STEM curricula, she has held national leadership roles including ASEE Vice President, WEPAN President, and Mathematical Association of America First Vice-President. In addition, she chaired the National Academies Ad Hoc Committee on the Gulf Scholars Program. She is a member of the Executive Committee of the Global Engineering Dean’s Council and a past member of the Executive Committee of the US Engineering Dean’s Council.

Retention programming is key to the professional and personal development of women undergraduate engineering students with the ultimate goal of earning their degrees. Zurn-Birkhimer and Serrano (2022) found that students who participate in Women in Engineering (WIE) programming their first semester (in particular a residential living community, a peer mentoring program, and/or a seminar course) graduate at higher rates than those who do not participate. The study went on to show that participation in multiple programs led to a greater likelihood of graduation: participants in one activity were 17% more likely to graduate than those who did not participate, participants in 2 activities 33% more likely, and participants in 3 activities 61% more likely (Zurn-Birkhimer and Serrano, 2022). However, offering a portfolio of intentionally developed and structured retention programs will only be successful if students engage.

In 2020, Kathy Ehrlich-Scheffer completed her Master’s Capstone project investigating decreasing student engagement within WE@RIT (Women in Engineering at RIT), leading her to consider how the changeover of generations (Millennials to Gen Z) contributed to this decline. Her findings showed that Gen Z is highly relational, but also pragmatic and risk-averse. Gen Z is less likely than their millennial counterparts to volunteer their time, and when they do so they are constantly weighing the cost versus benefit of time away from their studies. Ultimately, Kathy found that today’s students will engage much more cautiously, typically doing so in ways that focus on root cause/system change; that result in concrete benefits to their academics or professional endeavors; or that build relational community organically and as a result of the student voice. Armed with this knowledge and a resulting community-wide needs assessment, Kathy is now implementing program changes that align more readily with today’s Gen Z students.

So, it would seem pertinent to engage students in intentional and relational WIE programming. In this session, 4 established Women in Engineering Programs will discuss their development and execution of retention programming for undergraduate engineering students. We will also discuss engagement strategies and facilitate an open discussion around engaging with today’s Gen Z students.
Dr. Suzanne Zurn-Birkhimer has spent her career diligently working towards broadening participation of women and underrepresented groups in STEM fields. She is the Associate Director of the Purdue University Women in Engineering Program where she leads retention efforts and conducts research around female student success. She also holds a courtesy Associate Professor appointment in the Department of Earth, Atmospheric, and Planetary Sciences where she teaches introductory Atmospheric Science courses. Dr. Zurn-Birkhimer’s research focuses around understanding the barriers and pathways to success for typically marginalized groups in STEM.

Sarah DuBois is an experienced higher education professional with a passion for working with students and implementing high-impact programming for both undergraduate and K-12 audiences.
Kathy Ehrlich-Scheffer has served as Director of Women in Engineering at RIT (WE@RIT) since 2015 and brings a rich array of life experiences to the position. After graduating with a bachelor’s degree in Public Affairs from a women’s college where she learned first-hand the value of a female-centric support network, she made her way to Silicon Valley. There she studied CMOS Mask Layout Design which eventually led her to a position in IT for a semiconductor IP start-up. She also spent many years in the fitness industry while raising her daughter, wearing every hat from personal trainer and cycling instructor to owner and director of Cycledelic Indoor Cycling Studio. She draws upon these many diverse career and life experiences while directing WE@RIT. In the spring of 2020, she earned her Master of Science degree in Program Design, Analysis & Management through RIT’s School of Individualized Study, combining concentrations in Project Management, Analytics and Research, & Group Leadership and Development.

Beth Hart is a Principal Lecturer and full-time faculty member in the School of Engineering Office of the Dean and Director of the Women Engineering Program at the University of Dayton (UD). She coordinates the WISE ILLC (Women in Science and Engineering Integrated Learning and Living Community) to help women build strong relationships in and out of their STEM classes, and was recently selected as one of the Women of UD. She received both her bachelor’s and master’s degrees in chemical engineering from the University of Dayton.
Theme: Confronting the Impacts of Inequity and Moving Toward Change

“Effect of Threatening Intellectual Environments on Women in STEM”

This session will enhance capacity for insight into the recognition and manifestation of existential themes and concerns in STEM settings and offer tactics to counter them and better facilitate inclusion, retention, and success for members of historically minoritized groups.

Bettina Casad, Ph.D
Associate Professor and Director, Behavioral Neuroscience Program, University of Missouri

Dr. Bettina Casad is an Associate Professor of Psychological Science and conducts social psychology and social neuroscience research. She examines the role of threatening environments in underrepresentation in STEM. Dr. Casad works on DEI initiatives and serves as Co-PI on an ADVANCE grant, leading campus DEI events and training faculty mentors. Her research program has been funded by the National Science Foundation, National Institutes of Health, Army Research Institute, Psi Chi, the Society for the Psychological Study of Social Issues, and the Haynes Foundation.
“Perspectives of WIE and WISE Students from Across the US”

Hosted by Beth Anne Johnson, current WEPAN president, this panel offers students the chance to share their experiences and perspectives on how they have been supported through their institution’s Women in Engineering (WIE) or Women in Science and Engineering (WISE) programs.

Beth Anne Johnson
President, WEPAN; Associate Director, Women in Science and Engineering, Clemson University

Beth Anne Johnson serves as the Associate Director for the Women in Science and Engineering (WISE) Program in the College of Engineering, Computing and Applied Science at Clemson University. Since the program’s establishment in 1995, the WISE program has helped thousands of women successfully gain employment in male dominated industries. This award-winning program pairs first year, female-identifying students with female upperclassmen to guide the young women in their college experience. While teaching essential skills alongside academics, Johnson helps educate and prepare women to pursue and secure successful careers in science, technology, engineering and mathematical (STEM) fields through outreach, recruitment, and college support.

Amber Oakley
Student, Clemson University

Amber Oakley works as an Undergraduate Teaching Assistant in the General Engineering Department, assisting professors and hosting out-of-class tutoring sessions. She also works as a Women in Science and Engineering Mentor through the PEER&WISE office. Her main role in this position is to increase retention among underrepresented undergraduate students in STEM majors by helping them build a community they may not find in their classes. Amber is a recipient of the SMART Scholarship which is sponsored by the Department of Defense; through this scholarship she will be working full time over the summer and when she graduates at Los Angeles Air Force Base as a Systems Engineer.
**Elissa Sainthil**
*Student, Rochester Institute of Technology*

Elissa Sainthil, a microelectronic engineering student, is a member of the Women in Engineering Program and of her school Society of Women Engineers chapter. Through the exposure of these groups, she has been gifted with the opportunity to travel, network, gain mentorship, and even join the RIT Hot Wheelz Solar Race Car Team. Sainthill is from Long Island, New York where she has been fortunate to have the STEM in her life for as long as she can remember. With parents from engineering backgrounds and herself a participant in the New York Science and Technology Entry Program, she is grateful for any and every opportunity to further her learning.

**Maddy Counts**
*Student, Clemson University*

Maddy Counts, a senior mechanical engineering student, works as a Women In Science and Engineering (WISE) Mentor and as a Programs for Education Enrichment, and Retention (PEER) & WISE tutor. She plans to work full time at Eastman Chemical Company upon graduation.

**Sachi Kulkarni**
*Student, University of Texas at Austin*

Sachi Kulkarni is a third-year studying public health and business with hopes of attending medical school. She has worked with the UT Austin Women in STEM program since February 2022. She has interests in population health, education, and health policy, and is a certified Emergency Medical Technician. In her free time, she leads a public health organization called the Health Disparities Student Collaborative and sings in the collegiate a cappella group Noteworthy A Cappella.
Laura Bottomley, an engineering education researcher and practitioner, sits down for a conversation with Stephani Page, Director of Strategic Initiatives for WEPAN, about her experiences in advancing women in engineering in institutional settings.

Dr. Bottomley is the founding Director of the Engineering Education program at NC State University. She has served in various roles in her professional societies, IEEE and ASEE, for more than thirty years, and has served as the Director for the Women in Engineering Program at NC State University for over two decades. Dr. Bottomley is a Fellow of the American Society of Engineering Educators (ASEE) and a Fellow of IEEE.

Laura Bottomley, Ph.D.
Director, Engineering Education, The Engineering Place and Women in Engineering, North Carolina State University

Dr. Laura Bottomley directs the Engineering Education Program, the Engineering Place for K-20 Outreach, and the Women in Engineering Program at North Carolina State University. She is also a Teaching Associate Professor in the Colleges of Engineering and Education. She has taught every grade K through graduate school and has reached close to 200,000 students. She has received awards from the White House twice with the Presidential Award for Excellence in Mathematics, Science and Engineering Mentoring program.
“A Framework and Funding Guide to Help Women in Academia Commercialize Research, Get Connected to Resources and Find Funding that Fits”

A recent article from the Society of Women Engineers highlighted the need for more examples, guides, mentors and easily accessible and relatable information to address the unique challenges faced by women in tech commercialization, and researchers called for tools that could provide insights and tools to overcome them.

This workshop is designed to offer women a framework and guide with a list of resources, including funding, educational opportunities and entrepreneurship communities/ecosystems to help move innovation out of the lab and into the market. Participants will walk through the process of taking a paper napkin idea through to commercialization, specifically for women in STEM and often from academia.

Using four examples of successful women who have recently received an SBIR Seed Fund, angel investing and utilized campus resources, participants will be able to identify what funding source best fits their stage of tech and how to take the next step, develop goals, and advance their tech. This workshop will highlight specific challenges that women face in this space and offer resources aimed to combat institutional and system barriers that deter women from advancing their research to market.

**Melissa Paciulli**  
*Executive Director, Kenzie Academy, Southern New Hampshire University*

Melissa Paciulli is the Executive Director of Kenzie Academy from Southern New Hampshire College. Kenzie is a Tech Credentialing company that works with students to advance skills in UX, Cybersecurity, FullStack and other platforms. She is a serial entrepreneur and has been focused on commercializing her PhD research, where she created an augmented reality game based technology and training program to help teens with ADHD to drive safer. She is passionate about educational and removing barriers to education for all learners.
"Changing the Negative Discourse Regarding Women Belonging and Becoming Engineers"

Toward our goal of changing the negative discourse regarding the persistence of women in engineering, we expect to answer this research question: what are the personal, experiential and institutional factors that facilitate women who thrive in engineering student project teams? The analyses of our data have revealed two main findings.

First, project teams are place where these women find a place of belonging. Belonging begins within the context of a supportive family where there are non-essentialized gendered roles and/or clear rejection of absolute division of genders, their associated roles and behaviors, and thus deemed values. Belonging is also reflected in the project team itself. We note that these students are rapidly creating a different engineering culture. By valuing participation and learning from each other, women are fostering a climate of inclusion. This inclusive climate enhances their joy of doing engineering.

Our second finding is a sense of becoming, that is becoming an engineer. We find this through common discussions regarding the importance of fun, specifically, engineering fun and social fun. Social fun speaks to the membership among their community of peers. Women experience engineering fun and develop their expertise in a patterned progression of play, practice, and perform. By playing, practicing, and performing engineering, women claim their identities as engineers and have those identities acknowledged by team members. Their leadership roles on the project teams have become channels for such identity claiming and reaffirmation, but more so a key and effective platform for the women to exert agency and create positive cultural change which in turn reciprocally feeds back to identity.
Dr. Rick Evans, a sociolinguist, has published articles/chapters and presented and published proceedings at national and international conferences in the fields of sociolinguistics, applied linguistics, literacy studies, performance studies, folklore/anthropology, business education, engineering education and professional communication. Currently, he is a principle investigator (PI) in the National Science Foundation (NSF) funded project entitled “We are Thriving: Challenging negative discourse through the voices of women in project teams.”
Using the metaphor of a ladder, this High 5 presentation will outline programs unique to the College of Engineering and Applied Sciences (CECAS), which have elevated the college’s ability to recruit and support women in STEM, including STEM ALL IN, ASPIRE, and Bridge 2 the Doctorate (B2D). Facilitators will discuss how the college built upon undergraduate recruitment, alumni relations, industry connections, and university articulation agreements to increase the recruitment of women to STEM graduate programs through dedicated staff member time, internal and external funding, and broader and targeted DEI programs.

Facilitators will share institutional data on application and enrollment trends related to women in STEM to discuss how the nexus of these programs and layers of institutional investment contribute to the recruitment, retention, and support of women in STEM.

STEM ALL IN is a recruitment initiative with a dual mission to educate URM students on pathways to advanced degrees in STEM, while showcasing what Clemson University offers. Entering its 5th year, STEM ALL IN has provided educational support to 41 URM women in STEM and four participants have ultimately enrolled at Clemson University. The ASPIRE to Advance mentoring program is a retention and career development initiative which pairs graduate students (open to URM and non-URM students) with peer mentors from graduate programs across the college. In 3 years Aspire to Advance has matched 230 students with peer mentors, and a total of 79 women in STEM have participated. In 2022 Clemson University welcomed its first cohort of 12 NSF B2D fellows. Of the 12 fellows, 6 are URM women, and 4 participated in STEM ALL IN.
Dr. Melissa C. Smith serves as the Associate Dean for Inclusive Excellence and Graduate Studies and is a Professor in Electrical and Computer Engineering at Clemson University. She received the YMCA Stratford Award for Diversity and Inclusion in 2017 and the Tribute to Women Award in Science and Technology from the YWCA in 2006.

Tonyia Stewart serves as the Director of Graduate Recruitment and Inclusive Excellence. She manages and coordinates STEM ALL IN, Aspire to Advance, and Bridge to Doctorate programs.

Dr. Andrew Edmunds serves as Coordinator for Graduate Recruitment and Inclusive Excellence. In his role he supports the recruitment, admission, and retention of graduate students in CECAS with a special emphasis on URM, women, and domestic students.