2023

ATE PRINCIPAL INVESTIGATORS' CONFERENCE

OCTOBER 25-27

OMNI SHOREHAM HOTEL
WASHINGTON, D.C.

CELEBRATING 30 years OF ADVANCING TECHNOLOGICAL EDUCATION

CONNECTION
COLLABORATION
INNOVATION

NSF

AACC AMERICAN ASSOCIATION OF COMMUNITY COLLEGES
LEAD ADVOCATE ADVANCE

CONFERENCE PROGRAM

#ATEPI

WWW.ATEPICONFERENCE.COM

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About AACC: As the voice of the nation's community colleges, the American Association of Community Colleges (AACC), delivers educational and economic opportunity for nearly 12 million diverse students in search of the American Dream. Uniquely dedicated to access and success for all students, AACC's member colleges provide an on-ramp to degree attainment, skilled careers, and family-supporting wages. Located in Washington, D.C., AACC advocates for these not-for-profit, public-serving institutions to ensure they have the resources and support they need to deliver on the mission of increasing economic mobility for all. https://www.aacc.nche.edu/

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GENERAL INFORMATION

CELEBRATING 30 YEARS OF ADVANCING TECHNOLOGICAL EDUCATION

THIRTIETH NATIONAL ATE PRINCIPAL INVESTIGATORS' CONFERENCE
OCTOBER 25–27, 2023 | OMNI SHOREHAM HOTEL | WASHINGTON, DC

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HOTEL INFORMATION

Omni Shoreham Hotel (Conference site)
2500 Calvert Street, NW
Washington, D.C.
202-234-0700

REGISTRATION HOURS

ATE Registration Desk
West Conference Foyer

Wednesday - 7:30 a.m. – 7:00 p.m.
Thursday - 7:00 a.m. – 5:30 p.m.
Friday - 7:00 a.m. – 12:00 p.m.

ACCESSIBILITY INFORMATION

All meeting rooms can be accessed through the elevators in the West area of the hotel with the exception of the Regency and Ambassador Ballrooms. A wheelchair lift is located next to the Ambassador Ballroom main entrance and can be taken down to the Regency level for entry to both Ambassador and Regency Ballrooms. Restrooms with wheelchair access are located on both Level 1B and 2B (inside of the Health Club), on the lobby level, and in Robert's Restaurant.

TWITTER: #ATEPI

EVENT CODE OF CONDUCT

The American Association of Community Colleges (AACC) seeks to foster a welcoming and intellectually stimulating experience for all participants. The ATE PI Conference is a place for the open exchange of opinions by diverse individuals; and respect and inclusivity for all is expected. In furtherance of this purpose, any behavior, whether personal or professional, that is unwelcome and offensive, or shows disrespect or aggression will not be tolerated.

Participants, presenters, vendors, employees, and staff are strongly encouraged to be alert to, and report to AACC staff any behavior inconsistent with this Code of Conduct. If anyone is made to feel unsafe or unwelcome, that situation should be immediately reported to an AACC staff member by contacting ate@aacc.nche.edu or to Ellen Hause, Associate Vice President, by phone at 202-416-4553. Persons determined by AACC to have engaged in unacceptable behavior may be excluded from further participation and may be required to depart the conference venue without reimbursement. Thank you for helping to make this a welcoming and professionally valuable event for all.

SCHEDULE AT A GLANCE

WEDNESDAY, OCTOBER 25, 2023

PRECONFERENCE ACTIVITIES

7:30 a.m. – 7:00 p.m. Conference Registration
West Conference Foyer

AM WORKSHOPS

9:00 a.m. – 12:30 p.m. Workshop A: Getting Started for New Grantees
Advance Registration & Ticket Required
Empire

9:00 a.m. – Noon Workshop B: Practical Accessibility – Making Your Website and Materials Usable for All Learners
Advance Registration & Ticket Required
Diplomat

9:00 a.m. – Noon Workshop D: How to Elevate Your ATE Program Using Effective Communications Strategies
Advance Registration and Ticket Required
Ambassador

9:00 a.m. – Noon Workshop E: Interpreting Evaluation Data – Unlocking Insights for Project Improvement
Advance Registration and Ticket Required
Palladian

12:00 – 4:30 p.m. Universal Access Lab
Committee

1:00 – 2:50 p.m. HIGH IMPACT WORKSHOPS

Fostering Adaptive Expertise: Project-Based Learning & Capstone Project Design
Workshop: Track 1
Ambassador

Enhancing Technology Skills Via Remote Labs, Industry, & Education Partnerships
Workshop: Track 1
Palladian

BioSCOPE: Project-Based, Work-Based Learning in Biomanufacturing
Workshop: Track 1
Governors

Micromessaging to Facilitate Equitable Learning Environments
Workshop: Track 2
Executive

Education Across Diverse Student Populations in STEM including Veterans
Workshop: Track 2
Hampton

Global Partnership in Supporting Advanced Manufacturing Technical Education
Workshop: Track 3
Diplomat

From Education to Industry: Building the Ag Technician Workforce through Industry Connections
Workshop: Track 3
Congressional

Using AI to Broaden Participation in ATE + How to Conduct Applied Research
Workshop: Track 4
Empire

Building Institutional ATE Grant Capacity through CCPI-STEM Curriculum
(By Invitation Only)
Affinity: Track 1
Cabinet

3:00 – 4:30 p.m. AFFINITY GROUP MEETINGS

The Convergence of Extended Reality (XR) and AI
Affinity: Track 1
Diplomat

Training Online Faculty – Ensuring High Quality, Accessible Online Courses
Affinity: Track 1
Congressional

Using Data to Determine Viable Geospatial Instructional Module Development
Affinity: Track 1
Governors

The Intersection of Manufacturing, Biotechnology, and Cybersecurity
Affinity: Track 3
Palladian

Advanced Tech Education Role in Quantum Workforce Development of the 21st Century
Affinity: Track 3
Hampton

Developing and Assessing Success Metrics for Work-Based Learning
Affinity: Track 4
Ambassador

Sustaining Best Practices as a Foundation for Further Innovation
Affinity: Track 5
Empire

PI 101 – Cohort 1 Meeting
(By Invitation Only)
Affinity: Track 5
Forum

3:15 – 4:00 p.m. ATE Student Meet & Greet
(Open to ATE Students Only)
Executive

CONFERENCE OPENING

5:00 – 7:15 p.m. Opening Plenary Session and Dinner
AI, Adaptability, and the Future of Work
Regency

7:15 – 8:45 p.m. Student Poster Session & Dessert Reception
Blue Pre/Blue Room

THURSDAY, OCTOBER 26, 2023

7:00 a.m. – 5:30 p.m. Conference Registration
West Conference Foyer

7:30 – 8:30 a.m. Breakfast
Regency

7:30 a.m. – 3:30 p.m. Universal Access Lab
Committee

8:00 – 8:30 a.m. ATE Connects – Session 1 Set-Up
Exhibit Hall

8:30 – 9:20 a.m. CONCURRENT SESSIONS

Concurrent 1: How Cross-Disciplinary Skill Sets are Changing the Nature of Work Across Sectors
Ambassador

Concurrent 2: An Overview of EV and EV Related ATE Resources, Organizations, and Opportunities
Diplomat

Concurrent 3: Work-based Learning (WBL): The Power of Earn & Learn Models for Student Success & Employment
Empire

Concurrent 4: Opportunities to Meet the Challenges to Recruit and Retain a Skilled Semiconductor Workforce
Palladian

8:30 - 9:30 a.m.

Business/Industry "Flash Mentoring" Session for ATE Students
(Open to ATE Students Only)
Executive

9:30 - 10:20 a.m.

SPOTLIGHT & SYNERGY SESSIONS

Shifting Education Towards Electric and Autonomous Technologies
Spotlight: Track 1
Diplomat

Enhancing Independent Mechatronics Curriculum, Partnerships and Pathways
Spotlight: Track 1
Calvert

EARTh Center: Amplifying ATE Projects with Enhanced Services & Opportunities
Synergy: Track 1
Hampton

The Journal of Advanced Technological Education (J ATE): Student & ATE Team Publications
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Cabinet

Silicon Photonics Training for Community College Faculty
Synergy: Track 1
Palladian

Designing Summer Programs to Increase Enrollment and Engagement
Synergy: Track 2
Congressional

Expanding Geospatial Technology Education with Students and Alumni
Synergy: Track 2
Governors

Enhancing Employability Skills Across Disciplines
Synergy: Track 2
Blue Room

Industry Partnerships: Leveraging Campus Resources, Weathering Campus Change
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Ambassador

Wastewater Monitoring in the Context of Climate Change
Spotlight: Track 3
Capitol

Diversity, Equity, & Inclusion in ATE Evaluation: Case Studies of 3 ATE Projects
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Empire

Exploring the Success Value of Experiential Learning Activities
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Embassy

10:30 a.m. - 12:15 p.m.

ATE CONNECTS SESSION I & REFRESHMENTS
Exhibit Hall

12:15 - 12:30 p.m.

ATE Connects Session I Breakdown
Exhibit Hall

12:15 - 1:15 p.m.

Networking Lunch
Regency

1:30 - 2:20 p.m.

SPOTLIGHT & SYNERGY SESSIONS

ATE Best Practices for the Convergence of Disciplines
Spotlight: Track 1
Palladian

Approaches to Embedding Creativity into Technician Education
Synergy: Track 1
Ambassador

Mobile Way of Learning: Pathway to Student Success
Synergy: Track 1
Hampton

Exploring Innovative Faculty Development Methods
Synergy: Track 1
Executive

Discussing an Engineering Technology Bridge Program's Structure and Curriculum
Synergy: Track 1
Capitol

Community Colleges Co-Operating to Improve Learning for Technology Students
Synergy: Track 2
Governors

Finding their Way: Student Pathways into Technician Programs & Careers
Spotlight: Track 2
Cabinet

Co-Designing Work-Based Learning Simulations in Biomanufacturing
Synergy: Track 2
Empire

Increasing the Number & Diversity of Cybersecurity Techs in Rural North Carolina
Spotlight: Track 3
Calvert

International Collaboration & Travel
Synergy: Track 3
Congressional

Industry Relationship Strategies: Effectively Navigating the Give and Take
Synergy: Track 3
Blue Room

Next Gen Manufacturing Programs and ATE: Strategies & Collaborations
Synergy: Track 5
Diplomat

2:30 – 3:00 p.m. DEMONSTRATION SESSIONS

Digital Learning and VR Supporting New Aircraft Maintenance Standards
Diplomat

Building Cybersecurity Skills: Exploring a Cyber Range through Practice
Ambassador

Pathways for Exploring Biotech Careers and Finding Employer Locations
Empire

STEMploying the Future: Using AR/VR to Redefine Workforce Preparedness
Palladian

Advanced Design Simulations to Support the Renewable Energy Workforce
Hampton

BETA Skills Summer Industry Fellows Program
Calvert

Arduino Microcontroller Demonstration
Blue Room

Strategies for Recruiting High School Students to Your Biotechnology Program
Governors

Assessing & Evaluating Partnerships: Using the Partnership Rubric
Congressional

The EVALUATE-UR Method: There is a Version Just Right for You and Your Students
Executive

3:00 – 3:30 p.m. ATE Connects Session II – Set-Up
Exhibit Hall

3:10 – 3:40 p.m. DEMONSTRATION SESSIONS

Build Your Own VR Training World & Level Up Your Technician Program & Recruiting
Palladian

Teaching Technician Troubleshooting with Mini Industry 4.0 Factories
Hampton

Interested in Teaching Quantum – Where to Start?
Blue Room

Water DROPS – Developing VR Training for Water Operators
Diplomat

Responding to Industry 4.0 Driven Required Skills with Edge Devices
Ambassador

Biotechopoly™: Antibody Edition – A Board Game about the Business of Biotech
Empire

Developing Undergraduate Research Opportunities with Industry Partnerships
Calvert

Licensing and Archiving: How it Works
Governors

IR-Informed Evaluation to Assess Student Outcomes and Program Success
Congressional

Celebrating ATE's Evolution through Findings from the ATE Survey
Executive

3:45 – 5:30 p.m. ATE CONNECTS SESSION II & REFRESHMENTS
Exhibit Hall

5:30 – 5:45 p.m. ATE Connects II–Breakdown

FRIDAY, OCTOBER 27, 2023

7:00 a.m. – 12:00 p.m. Conference Registration
West Conference Foyer

7:15 – 8:30 a.m. Breakfast
Regency

7:30 – 8:30 a.m. Breakfast Roundtables
Regency

7:30 – 8:30 a.m. ATE Student/Alumni Recognition Breakfast
(By Invitation Only)
Empire

8:45 – 10:00 a.m. Plenary Session: Augmented Reality and the Future of Education
Regency

10:00 – 10:10 a.m. Coffee Break
Regency Foyer

10:10 a.m. – 12:00 p.m. HIGH IMPACT WORKSHOPS

Using Hackathons to Tackle Challenges in Technological Education
Workshop: Track 1
Blue Room

A Multidisciplinary Approach to Teaching Cybersecurity
Workshop: Track 1
Empire

Reaching Out to Recruit: Valuing DEIA while Building a Biotechnology Program
Workshop: Track 2
Blue Room Prefunction

Partnerships to Support Semiconductor Manufacturing Technical Workforce
Workshop: Track 3
Palladian

10:10 – 11:00 a.m. SPOTLIGHT & SYNERGY SESSIONS

Strategies for Becoming a Leader in the ATE Community and What You Need to Know
Synergy: Track 1
Executive

Pros and Cons of Microcredentials – Where is the Value?
Spotlight: Track 2
Congressional

Join Our Game-Changing Session for Educators: Empowering Women in Auto & Diesel
Synergy: Track 2
Capitol

Strategically Deepening Employer Engagement for Technical Programs
Spotlight: Track 3
Ambassador

Needed Math: Comparing Beliefs of Industrialists, Technical, & Math Educators
Synergy: Track 4
Governors

What PIs Need to Know about Preparing NSF Annual Reports – Now!
Spotlight: Track 5
Diplomat

11:10 a.m. – 12:00 p.m. SPOTLIGHT & SYNERGY SESSIONS

Advancing ATE through CCPI Fellows Leadership Program
Synergy: Track 1
Executive

Recruitment and Retention: 10 Strategies That Can Work for You
Spotlight: Track 2
Congressional

Addressing Workforce Needs in Advanced Manufacturing through Curriculum
Synergy: Track 3
Governors

Exploring How Community Colleges Engage in Regional Economic Development
Spotlight: Track 4
Ambassador

Developing Effective and Meaningful Evaluation Indicators for Your ATE Project
Spotlight: Track 4
Capitol

NSF Funding Opportunities for Two-Year Institutions
Spotlight: Track 5
Diplomat

12:00 p.m. Conference Adjourns

12:15 – 2:30 p.m. Post-Conference ATE Center Directors' Meeting & Lunch
(ATE Center Directors Only)
Palladian

GUIDE TO CONFERENCE SESSIONS

Please refer to the conference schedule for specific session times and room locations.

ATE CONNECTS: ATE Connects is a key component of the conference and offers ATE projects and centers the opportunity to network and connect with conference participants, explore the ATE community, and engage in the sharing of information, resources, and materials related to their programs. ATE Connects consists of two conversation and networking sessions on October 26.

AFFINITY GROUP MEETINGS: Affinity group meetings offer a venue for ATE grantees to network, share insights, and explore ways to collaborate around areas of similar interest. Affinity meeting leaders serve as facilitators of interactive, substantive discussions that share promising practices and lessons learned with other members of the ATE community.

CONCURRENT SESSIONS: Concurrent sessions include formal presentations and/or panel discussions that address topics pertaining to the conference theme and the needs of the ATE community.

DEMONSTRATION SESSIONS: Demonstration sessions are formal 30-minute presentations that show how to use or apply a pedagogical tool, concept, or model. Presenters will walk attendees through a step-by-step explanation of the tool, concept, or model; its strengths and weaknesses; and how it can best be applied or implemented.

HIGH IMPACT WORKSHOPS: High impact workshops are designed to address targeted areas of need within the ATE community, such as those identified in the conference tracks, including but not limited to addressing challenges in student recruitment/retention; grants management; diversity, equity, and inclusion; and the implementation of teaching/learning models. High impact workshops focus on content that is relevant and applicable across STEM disciplines.

BREAKFAST ROUNDTABLES: Breakfast roundtables provide forums for informal discussion of a specific topic among small groups. Attendance is first-come, first-served, and limited to a maximum of 10 people, including the moderator, seated around one round table.

SPOTLIGHT SESSIONS: Spotlight sessions provide additional venues for formal presentation. Presenters may facilitate an exchange of ideas or share promising practices to provide greater insight into the issues outlined in the conference tracks.

SYNERGY SESSIONS: Synergy sessions are similar in format to Affinity group meetings—though offer a more informal opportunity to connect attendees and stimulate interactive and lively conversations during the main days of the conference agenda. The sessions allow attendees to meet and discuss issues relating to common interests, address challenges, and share transferable strategies and practices.

STUDENT POSTER SESSION: ATE students will highlight their program of study and/or career path at a student poster session. Please take the time to visit the student posters and show your support of their efforts.

SESSION TRACKS: The conference sessions feature topics pertaining to the conference theme and are organized by the following tracks:

- **Track 1. Advancing Technological Education for Impact**
  Examples of topics include: virtual teaching/learning strategies; AI; undergraduate research; competency-based learning; work-based learning; credit for prior work experience; alternative forms of credentials including micro-credentials; internships; apprenticeships; bridge programs; addressing emerging career fields/technologies; career pathways; professional and faculty development; leadership development; and mentoring programs.
- **Track 2. Engaging STEM Students for Success**
  Examples of topics include: addressing diversity, equity, and inclusion gaps; strategies for recruiting and retaining underrepresented students; interactions with secondary school CTE programs; dual enrollment; career awareness/outreach; working with guidance counselors and career coaches; and direct student interaction with industry.
- **Track 3. Initiating & Maintaining Partnerships**
  Examples of topics include: creating, maintaining, and leveraging partnerships with business and industry, college administrators, secondary schools, funders, local/state government, and/or the community; addressing workforce development needs through collaboration with business/industry; and outreach to external constituents.
- **Track 4. Conducting STEM Research & Evaluation**
  Examples of topics include: strategies for conducting institutional and educational research; partnering with four-year colleges on student learning outcomes; strategies for assessment; strategies for capturing reliable impact data; and evaluation.
- **Track 5. Sharing Proven Practices in Grant & Program Management**
  Examples of topics in this category include: strategies for project and fiscal management; sustaining and scaling programs; preparing annual reports; and dealing effectively with unforeseen and/or unavoidable project changes.

CONFERENCE SCHEDULE

WEDNESDAY, OCTOBER 25

PRECONFERENCE ACTIVITIES

7:30 a.m. – 7:00 p.m. Conference Registration
West Conference Foyer

AM WORKSHOPS

9:00 a.m. – 12:30 p.m. Workshop A: Getting Started for New Grantees
Advance Registration & Ticket Required
Empire

This workshop is recommended for all principal investigators, co-principal investigators, and other team members involved in newly awarded projects and centers in FY23. Others who may find the workshop useful include new awardees in FY22 and other project personnel from prior years who have recently become involved in ATE projects and centers. The goal of this workshop is to make new grantees aware of the reporting and financial requirements of their ATE grant and to connect them with other ATE projects and centers that can help them successfully manage, evaluate, and report on their projects. Participants will have the opportunity to hear from individuals representing Mentor-Connect, ATE Central, EvaluATE, and the National Science Foundation and to learn about the various resources they provide through this workshop. Participants will be provided access to a resource packet and are encouraged to bring questions about the management of their projects for discussion. In addition, a meet and greet and box lunch opportunity with NSF ATE program directors will be offered from 11:30 a.m. – 12:30 p.m. for workshop participants.

Ed Almasy, Co-PI, ATE Central, University of Wisconsin–Madison, WI; **V. Celeste Carter**, Lead ATE Program Director, National Science Foundation VA; **Elaine Craft**, PI, Mentor-Connect, Florence-Darlington Technical College, SC; **Angela Turner**, Grant Specialist, National Science Foundation, VA; **Erika Sturgis**, Research Data Analyst, The Evaluation Center, Western Michigan University, MI

9:00 a.m. – Noon Workshop B: Practical Accessibility – Making Your Website and Materials Usable for All Learners
Advance Registration & Ticket Required
Diplomat

Deepen your accessibility skills and learn how to make your ATE project and center website and materials more usable for all learners. Led by experts from CAST, this interactive workshop will begin with a brief overview of Universal Design for Learning (UDL), a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. Workshop participants will then be introduced to four key accessibility principles – Perceivable, Operable, Understandable, & Robust (POUR) and learn how these principles can be applied at a practical level to help ensure accessibility. The workshop will be anchored around case studies conducted with members of the ATE community that showcase how ATE PIs made their materials and activities more accessible. Participants will come away with a clearer understanding of tools that can support their efforts, resources and organizations that can help them, and practices that can support the creation of accessible websites and resources, including videos, graphics, and presentations. Please bring a laptop or tablet to this workshop.

Rachael Bower, PI, ATE Central, University of Wisconsin-Madison, WI; **Luis F. Pérez**, Disability & Digital Inclusion Lead, CAST, MA; **Sam Catherine Johnston**, Chief Postsecondary & Workforce Development Officer, CAST, MA

9:00 a.m. – Noon Workshop D: How to Elevate Your ATE Program Using Effective Communications Strategies
Advance Registration and Ticket Required
Ambassador

Interested in learning how to raise awareness of your ATE program? Want to strengthen your program messaging to key audiences? Need more insight into developing an integrated communications strategy? In this three-hour workshop, you will learn from strategists at Fenton Communications, a social change agency, which solely works with purpose-driven organizations like nonprofits, foundations and corporate social good companies focused on important issues such as climate change, global health, DEI/racial justice, and education. Join us and learn how to use communications and marketing strategies to inform and strengthen how you communicate about your ATE program to improve student recruitment, outreach, and project dissemination.

Jessica Borbee, Senior Account Executive, Washington, DC; **Daria Hall**, Executive Vice President, Fenton Communications, Washington, DC; **Sierra Salser**, Senior Account Executive, Washington, DC

9:00 a.m. – Noon Workshop E: Interpreting Evaluation Data – Unlocking Insights for Project Improvement
Advance Registration and Ticket Required
Palladian

This interactive workshop is for ATE evaluators, PIs, and project staff who are looking to make the most out of their project evaluations. Session leaders will focus on the vital skill of interpreting evaluation data to inform meaningful project improvement and assess overall effectiveness. Interpreting evaluation data is a crucial step in extracting valuable insights and making informed decisions. Interpretation allows for sense-making and evaluative conclusions. Throughout the workshop, participants will explore various data interpretation strategies, including comparative analysis against historical or baseline data, benchmarking against national datasets, and participatory sense-making sessions. Using practical examples, hands-on activities, and engaging discussions, participants will be able to apply these interpretation techniques to their own ATE evaluations.

Lyssa Becho, PI, EvaluATE, Western Michigan University, MI; **Megan López**, Senior Research Associate, EvaluATE, Western Michigan University, MI

12:00 – 4:30 p.m. Universal Access Lab
Committee

Come join experts from within and beyond ATE to learn how to make your curriculum, website, videos, and other materials accessible to a more diverse group of users, including those with disabilities. The Universal Access Lab will showcase and provide live demonstrations of assistive technology, as well as tip sheets and other practical resources and materials. With opportunities to get feedback and support from experts on your own challenges, talk with others in the community and share ideas, and get a chance to explore new and exciting technology, the Universal Access Lab has something for everyone.

1:00 – 2:50 P.M.
HIGH IMPACT WORKSHOPS

Workshop: Fostering Adaptive Expertise: Project-Based Learning & Capstone Project Design
Track 1
Ambassador

In this highly interactive session, the development of adaptive expertise will be used to frame project-based learning and capstone projects in technical education disciplines. Discussions will focus on defining adaptive expertise and its importance and application in industry, defining and applying project-based learning strategies, and developing capstone projects. Based on best practices and frameworks provided, participants will design their own project-based learning activity or capstone project appropriate to their industry, college resources, and local conditions. Participants will share their strategies and project designs with the group.

Peter Crabtree, Visiting Project Scientist, University of California-Berkeley, CA; **Robert Nirenberg**, Faculty, Metropolitan Community College, NE; **Ted Wilinski**, Lead Instructor, Milwaukee Area Technical College, WI

Workshop: Enhancing Technology Skills Via Remote Labs, Industry, & Education Partnerships
Track 1
Palladian

The creation of enhanced and flexible learning opportunities in electronic/EV automotive technology and engineering—using portable electronics, lab equipment, and simulations—uniquely prepares students for advanced academic study and careers in these fields. A strategy to provide these opportunities is through industry engagement using a Business & Industry Leadership Team (BILT) model. Industry engagement promotes innovation, growth, and development within technical academic programs. In addition, it provides student internships and portable labs to enhance student skills as well as high school educator training to equip educators with the skills, knowledge, and tools to create engaging and impactful learning experiences, thereby expanding the pipeline of technical students.

Wesley Francillon, Academic Chair of Engineering, Technology, and Cybersecurity, Suffolk County Community College, NY; **Laura Galletta**, Director of Corporate Training, Suffolk County Community College, NY; **Pete Maritato**, Faculty, Suffolk County Community College, NY; **Gordon Snyder**, Engineering Deptartment Chair, Holyoke Community College, MA

Workshop: BioSCOPE: Project-Based, Work-Based Learning in Biomanufacturing
Track 1
Governors

Bioscience Supply Chain Operations Projects for Education (BioSCOPE) helps build the biomanufacturing workforce by providing students with project-based, work-based learning experience where students manufacture products (e.g., components for biotech lab kits) under quality and cGMP compliance to distribute to customers like high schools and college labs. This workshop introduces BioSCOPE and demonstrates the significance of quality/GMP in biomanufacturing, and the digital BioSCOPE 101 handbook with supply chain (SC) projects, SOPs, and Batch Records. Workshop leaders will demonstrate how to access and use BioSCOPE 101.

Ying-Tsu Loh, Executive Director, BABEC, CA; **Emily Quach**, Faculty, Laney College, CA; **Terri Quenzer**, Executive Director, Bioscience Workforce Development Hub, MiraCosta College, CA

1:00 – 2:50 P.M.
HIGH IMPACT WORKSHOPS

Workshop: Micromessaging to Facilitate Equitable Learning Environments
Track 2
Executive

The Micromessaging to Facilitate Equitable Learning Environments professional development program is one of the National Alliance for Partnerships in Equity's (NAPE's) flagship comprehensive educational equity programs. NAPE uses a humanizing approach to its equity work with educators by bringing them into a reflective learning community for ongoing professional development. Participants in this workshop will deepen their understanding of how equity and inequity operate in educational settings. In addition, participants will develop their individual and institutional knowledge, skills, and commitment to identify and eliminate inequities, and actively create equitable learning environments to improve student access, experiences, and outcomes.

Silvia C. Ramos, Vice President of Programs & Research, National Alliance for Partnerships in Equity (NAPE), PA; **Lisa Williams**, NAPE Equity Instructor, National Alliance for Partnerships in Equity (NAPE), PA

Workshop: Education Across Diverse Student Populations in STEM including Veterans
Track 2
Hampton

This workshop will explore experiences, case studies, strategies, and methods related to teaching and learning in technical disciplines. These practices have been implemented and are continually evolving to meet the diverse needs of a wide range of student learners including the veteran population. Attendees will learn about newer methods that are adapted to ensure efficient student learning and how to effectively prepare students for industry jobs and higher education. The workshop will include open-ended discussions, presentations, Q&A on topics including education in the STEM fields with a focus on nanotechnology and microelectronics, remote and in-person learning, and curriculum materials.

Zachary Gray, Assistant Research Professor, Pennsylvania State University, PA; **Thomas Johnson**, Instructor, Normandale Community College, MN; **Nancy Louwagie**, Instructor Vacuum Technology, Normandale Community College, MN; **Vishal Saravade**, Assistant Teaching Professor, Pennsylvania State University, PA

Workshop: Global Partnership in Supporting Advanced Manufacturing Technical Education
Track 3
Diplomat

"What can we learn from each other?" After a successful pilot with international colleges NOVA, Technicum, and Berufsbildende Schulen (BBS) Soltau, together with U.S. partners Oakton, Pasadena City, and La Guardia community colleges have collaborated in the Erasmus project "1 for All, Global 3D Printing." The objective of this project is to create a shared—through live and online international exchanges—curriculum and 3D printing industry experiences for technical education students. The project aims to enhance students' digital 3D design and print, intercultural communication, and collaboration skills. Pilot outcomes and future initiatives will be shared in this high impact workshop.

Jared Ashcroft, PI, Micro Nano Technology Education Center (MNT-EC), Pasadena City College, CA; **Philip Prale**, Professor, Education Technology, Oakton College, IL; **Marcel Toussiant**, Managing Director, One For All, Netherlands

Workshop: From Education to Industry: Building the Ag Technician Workforce through Industry Connections
Track 3
Congressional

This workshop focuses on how to develop an agricultural technician curriculum for secondary schools, which includes skills and knowledge directly relevant and transferable to postsecondary education and the agricultural technician workforce. Join this workshop to discuss how and what kind of partnerships to cultivate, and how to engage partners in moving from program development into supporting curriculum implementation in high schools nationwide—and why that support is critical to success. Partnerships include AgCentric, secondary and postsecondary curriculum experts, industry experts, and representatives from supporting associations.

Carl Aakre, CASE Director, National Council for Agriculture Education, MN; **Judy Barka**, Assistant Director, AgCentric, Central lakes College, MN

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

Workshop: Using AI to Broaden Participation in ATE + How to Conduct Applied Research
Track 4
Empire

Two distinct foci applicable across STEM disciplines are addressed in this hands-on workshop: (1) how to employ big data sets and Artificial Intelligence, and (2) how to design and conduct applied research. Through the lens of an applied research project that uses big data with localized data to understand grant ecosystems, participants will learn how to use these skill sets in their specific ATE work for the purpose of increasing participation (e.g., STEM enrollment, completion, diversity metrics, funding, usage of a technology) in their respective fields.

Christopher Baechle, Co-PI, Impact Allies, FL; **Rassoul Dastmozd**, Co-PI, Project Vision, MN; **Ben Reid**, Director and PI, Impact Allies, FL; **Will Tyson**, Co-PI, University of South Florida, FL

1:00 – 3:00 p.m. Building Institutional ATE Grant Capacity through CCPI-STEM Curriculum
(By Invite Only)
Cabinet

The Community College Presidents' Initiative in STEM (CCPI-STEM) ATE project focuses on achieving excellence in STEM education. This invite-only sessions aims to educate community college presidents and industry representatives about the CCPI-designed ATE grant curriculum, which focuses on the ins and outs of pre-award NSF grant funding. Participants will gain: (1) insights into the ATE grant process and supportive community; (2) strategies for addressing institutional barriers and challenges at their community colleges; and (3) opportunities to build relationships with other presidents and industry representatives from across the national CCPI-STEM network, which is divided into several regions.

Charlene M. Dukes, President Emerita, Prince George's Community College, MD; **Elizabeth K. Hawthorne**, Co-PI, CPPI-STEM, Prince George's Community College, MD; **Shane Kirby**, Director, Columbus State Community College, OH

3:00 – 4:30 P.M.
AFFINITY GROUP MEETINGS

Affinity: The Convergence of Extended Reality (XR) and AI
Track 1
Diplomat

Explore the transformative fusion of Extended Reality (XR) and Artificial Intelligence (AI), reshaping education and immersive encounters. Understand AI's current role and potential in education. Discover diverse AI applications within XR, revolutionizing how interactive experiences are crafted. Witness how AI-generated content and adaptive simulations unlock personalized learning journeys. Embark on an inspiring journey into the future, where XR & AI converge to create an enriched and engaging landscape of possibilities.

David Anderson, Biology Faculty, St. Cloud Technical & Community College, MN; **Dan Dennison**, 3D Modeler, Eastern Iowa Community College, IA; **Josh Webb**, AVR Manager, Eastern Iowa Community College, IA

Affinity: Training Online Faculty – Ensuring High Quality, Accessible Online Courses
Track 1
Congressional

This meeting focuses on best practices for training new faculty to teach online by cataloging key elements for high quality, engaging, and accessible online courses. Participants can expect an interactive and engaging dialogue addressing online course design and pedagogy, fostering an inclusive and engaging virtual environment, leveraging technology for active learning, and assessing student progress in the online mode. The facilitator will use their process as a springboard for sharing ideas and fostering expansion within the group. A checklist will be shared that ensures online programs offer outstanding, inclusive, and student-centered courses that connect with learners from diverse backgrounds.

Linda Bryant, Director, National Technical Institute for the Deaf Online Initiatives, Rochester Institute of Technology, NY

3:00 – 4:30 P.M.
AFFINITY GROUP MEETINGS

Affinity: Using Data to Determine Viable Geospatial Instructional Module Development
Track 1
Governors

It is difficult for geospatial faculty to know what combination of topics is best for preparing students for the geospatial workforce. In this affinity meeting, participants will discuss how the development of learning outcomes, tailored by virtue of DACUMs and competency modeling, supports the development of geospatial teaching modules. Session leaders will share and discuss how numerous mutually supporting research activities enable the creation and orientation of learning outcomes to prepare students for their chosen field.

Nicole L. Ernst, Associate Director, Co-PI, National GeoTech Center, KY; **Rodney Jackson**, Associate Director, Co-PI, National GeoTech Center, KY

Affinity: The Intersection of Manufacturing, Biotechnology, and Cybersecurity
Track 3
Palladian

The great challenge in technician preparation is not so much what to teach, but what NOT to teach. Each industry identifies the minimal skillsets required for entry-level technicians, and the list keeps growing. The fields of manufacturing, biotechnology, and cybersecurity coalesce in several instances. It will be meaningful to discuss these commonalities and incorporate them into training programs. Afterall, what NOT to teach is the more important question.

Philip Gibson, Strategic Advisor for Workforce Development, Center for Global Health Innovation, GA; **Sue Griffith Smith**, Vice President, Ivy Tech Community College of Indiana, IN; **Shamsi Moussavi**, Professor of Computer Science, MassBay Community College, MA

Affinity: Advanced Tech Education Role in Quantum Workforce Development of the 21st Century
Track 3
Hampton

Quantum technologies are paving the way to be among the most transformational technologies of the 21st century. As with any other disruptive technology, our society should be prepared to respond proactively to the challenges of the Quantum 2.0 revolution. Educational institutions are expected to play a major role in creating a robust quantum workforce that will support the developing quantum industry. In this affinity group meeting, session leaders will explore current trends and lessons learned from their collaborative work in the emerging quantum ecosystem, with a special focus on preparing two-year institutions of higher education to face the challenges of Quantum 2.0.

Mo Hasanovic, Associate Professor/Department Chair, Electronics Engineering Technology, Indian River State College, FL; **Celia Merzbacher**, Executive Director, Quantum Economic Development Consortium, VA; **Anca Sala**, Professor, Kettering University, MI

Affinity: Developing and Assessing Success Metrics for Work-Based Learning
Track 4
Ambassador

Work-based learning (WBL) is a highly effective method to engage students while they build critical workplace skills; and it is being added to many technician training programs. However, a crucial question arises: how can we measure the quality of WBL experiences to ensure maximum student benefit? In this session, representatives from EvaluATE and an established WBL program will draw on their experience to facilitate a discussion on WBL assessment. Participants will have the opportunity to explore diverse success metrics and methods for their assessment.

Lyssa Becho, PI, EvaluATE, Western Michigan University, MI; **Karen Leung**, Faculty, City College of San Francisco, CA; **James Lewis**, Project Director, Work-Based Learning Programs, City College of San Francisco, CA

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

Affinity: Sustaining Best Practices as a Foundation for Further Innovation
Track 5
Empire

This Affinity Group Meeting allows participants to share and learn more about how to sustain and build upon best practices that have been created in previous ATE-funded work. Additionally, the session will focus on examples of how to collect data for various initiatives to determine their effectiveness and candidacy for being sustained as well as how to find and adapt existing best practices. One focus will leverage examples from the partnership between the National Convergence Technology Center and Columbus State Community College's newly funded National Information Technology Innovation Center. Presenters will also share frameworks that have been adapted by the National Center for Next Generation Manufacturing.

Ann Beheler, PI, National Convergence Technology Center, TX; **Shane Kirby**, Director, Columbus State Community College, OH; **Karen Wosczyna-Birch**, Executive Director and PI, National Center for Next Generation Manufacturing, CT

Affinity: PI 101 – Cohort 1 Meeting
(By invitation Only)
Track 5
Forum

Mentor-Connect is working with the first cohort of PI 101 participants. This invite-only session provides in-person meeting time for these participants to share experiences, ask questions, and build community. PI 101 responds to a recognized need for comprehensive support for new ATE PIs. PI 101 begins when the grant award is received and includes just-in-time support, one-on-one help, one-to-many sessions, and accompanying resources developed by experienced PIs, mentors, and advisors. PI 101 guides new PIs from the time an award is received through the first year of grant management to reduce PI anxiety, support strong project outcomes, and stimulate interest in submitting subsequent grant proposals.

Emery DeWitt, Co-PI, Mentor-Connect, Florence Darlington Technical College, SC; **Pamela Silvers**, Co-PI, Mentor-Connect, Florence Darlington Technical College, SC

3:00 – 4:00 p.m. ATE Student Meet & Greet
(Open to ATE Students Only)
Executive

AACC is coordinating an informal meet-and-greet opportunity for ATE students attending the conference. Join us for some light refreshment, introductions, and an opportunity to meet your fellow students. Following the session, students can set up for their poster session in the BluePre/Blue Room.

CONFERENCE OPENING

5:00 – 7:15 p.m. Opening Plenary Session & Dinner
Regency

The opening plenary session and keynote speaker address will take place from 5:00 – 6:15 p.m., which will be immediately followed by dinner and networking from 6:15 – 7:15 p.m.

V. Celeste Carter, Lead ATE Program Director, National Science Foundation, VA

Walter G. Bumphus, President and CEO, American Association of Community Colleges, DC

James L. Moore III, Assistant Director for the Directorate for Education and Human Resources (EHR), National Science Foundation, VA

AI, Adaptability, and the Future of Work

Keynote Speaker: **Kian Gohar**, Founder/CEO, Geolab, CA

It seems suddenly, everywhere we look, AI is being talked about as a new transformative technology that will make our working lives easier and more creative. But the truth is more nuanced. New forms of AI, like Generative AI, have the potential to make our lives better; but how do we deploy them in ways that magnify abundance and opportunity, rather than reinforce biases and inequity? Through vivid storytelling and real-world examples, this plenary address will provide an introduction to new technologies that are converging to disrupt the future of work, including Generative AI, and will explore key questions for educators to consider for the near future: What jobs and tasks might be negatively disrupted? What new skills do students need to learn? And, how should we as humans adapt to a future that will forever be increasingly bionic—in tandem between human judgement and machine intelligence?

7:15 – 8:45 p.m. Student Poster Session & Dessert Reception
Blue Pre/Blue Room

ATE students and recent alumni will highlight their program of study and/or career path at a student poster session and dessert reception. Please take the time to visit the student posters and show your support for their efforts.

THURSDAY, OCTOBER 26

7:00 a.m. – 5:30 p.m. Conference Registration
West Conference Foyer

7:30 – 8:30 a.m. Breakfast
Regency

7:30 a.m. – 3:30 p.m. Universal Access Lab
Committee

Come join experts from within and beyond ATE to learn how to make your curriculum, website, videos, and other materials accessible to a more diverse group of users, including those with disabilities. The Universal Access Lab will showcase and provide live demonstrations of assistive technology, as well as tip sheets and other practical resources and materials. With opportunities to get feedback and support from experts on your own challenges, talk with others in the community and share ideas, and get a chance to explore new and exciting technology, the Universal Access Lab has something for everyone.

8:00 – 8:30 a.m. ATE Connects – Session 1 Set-Up
Exhibit Hall

8:30 – 9:20 A.M. CONCURRENT SESSIONS

Concurrent 1: How Cross-Disciplinary Skill Sets are Changing the Nature of Work Across Sectors
Ambassador

The development of new technological applications through the convergence of technologies is expanding rapidly. In this session, industry panelists will discuss how the ongoing integration of new combinations of technologies in their operations impacts the types of skills they seek in new program graduates. This discussion and the follow up Q&A provide an opportunity for participants to learn from industry and each other how to anticipate future expectations of advanced technology programs and to share how their programs and curriculum are changing in response.

Robert Gabbert, Principal, Gabbert Consulting Company, DC; **Tu Huynh**, Vice President, Infrastructure Technology Services, Comerica Bank, TX; **Mike Lesiecki,** Principal Consultant, Luka Partners, AZ; **Nikki Murphy**, Project Manager, Siemens-Energy, NC

Concurrent 2: An Overview of EV and EV Related ATE Resources, Organizations, and Opportunities
Diplomat

Thanks to more than 100 years of evolution and current technology convergence, the electric vehicle (EV) industry is at the beginning of a rapid expansion. However, the United States has fallen behind other countries' progress in the EV industry. Local, state, and national leaders, including the National Science Foundation, are heavily investing in growing the EV industry across the U.S. This session, co-hosted by three Consortia (NEVC, NEVTEX, and REVVED) and a project (HVCC) will provide direction and oversight to a range of ATE EV resources. The session is intended for participants interested in adding EV elements to various credit and noncredit programs, including automotive, energy, manufacturing, construction, IT, cybersecurity, and networking.

Kevin Cooper, PI, NEVC, Indian River State College, FL; **Robert Elliott**, Dean, Manufacturing and Maintenance, Trident Technical College, SC; **Ken Mays**, PI, NEVTEX, Central Oregon Community College, OR; **Christopher McNally**, Faculty, Hudson Valley Community College, NY

Concurrent 3: Work-based Learning (WBL): The Power of Earn & Learn Models for Student Success & Employment
Empire

Work-based learning (WBL) is an innovative combination of on-the-job training and related technical instruction leading to academic credentials, career pathways, industry recognized certification, and greater employee productivity. Hear from three ATE-funded programs as they share their innovative strategies for successfully implementing WBL through flexible apprenticeships, practicum sites, internships, and job shadowing; the value of industry/business partnerships; and how the programs have been a benefit to both students and employers. Attendees will receive actionable advice and access to materials that can be used for replication.

Geoffry Bauer, Program Manager, IT Flexible Apprenticeship Program, Columbus State Community College, OH; **Michelle Brewer**, Director and PI, VESTA, MO; **Deborah Dawson-Gunther**, Faculty, Automation and Advanced Industrial Technology, Montcalm Community College, MI; **Lawrence McWherter**, Assistant Professor, Cybersecurity, Columbus State Community College, OH; **Adrienne Summers**, Executive Director of Apprenticeships, American Association of Community Colleges, DC

Concurrent 4: Opportunities to Meet the Challenges to Recruit and Retain a Skilled Semiconductor Workforce
Palladian

The Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 (The CHIPS Act) makes significant investments in semiconductor research, development, and manufacturing; and the success of this investment is predicated on developing the workforce to execute the missions laid out in the CHIPS Act. With a vision of a national workforce development ecosystem that meets current and future employment needs with a skilled and diverse workforce for the domestic semiconductor industry in manufacturing, design, research, and innovation, the CHIPS Investment and R&D programs have identified the workforce challenges and seeks the opportunities and strategies to support the success of the semiconductor industry. The panel will share perspectives from government, higher education, training, and industry, on the challenges and opportunities to recruit, train, and retain a skilled STEM workforce for the semiconductor industry.

Reginald Hicks, Head of Facilities, Strategy Office, CHIPS Program Office, U.S. Department of Commerce, DC; **Jessica R. Nicholson**, CHIPS Policy Office, U.S. Department of Commerce, DC; **Katya Nekrasova**, Director, Federal and State Programs, Education Design Lab, DC; **Mary Ann Pacelli**, Senior Advisor, Workforce, NIST CHIPS R&D, DC; **Terri Burgess Sandu**, Director, Talent and Business Innovation, Director, Ohio TechNet, Lorain County Community College, OH

8:30 - 9:30 a.m. Business/Industry "Flash Mentoring" Session for ATE Students
(Open to ATE Students Only)
Executive

This session will provide student participants with the opportunity to engage directly with industry and business leaders from a variety of backgrounds to learn about the skills needed to be successful in the workplace. The session also includes an opportunity for "flash mentoring,"–a process designed to facilitate introductions between business/industry representatives and student participants–which promises to make for a fun and engaging experience.

9:30 – 10:20 A.M. SPOTLIGHT & SYNERGY SESSIONS

Spotlight: Shifting Education Towards Electric and Autonomous Technologies
Track 1
Diplomat

With the advancements of Advanced Driver Assistance Systems (ADAS) and electric vehicle (EV) technology, the transportation industry is experiencing a fast-paced shift into autonomous technologies. This rapid advancement brings challenges to the educational system to equip emerging technicians. Session leaders from Florida State College at Jacksonville will share strategies to establish partnerships and create educational content that will enable the next generation of technicians. This session will explore the transformation of the transportation industry and how it impacts the educational environment.

Douglas Brauer, Dean of Engineering and Technology, Florida State College at Jacksonville, FL; **Ken Mays**, PI, NEVTEX, Central Oregon Community College, OR; **Paul Soar**, Professor, Florida State College at Jacksonville, FL; **Robert Wechsler**, Professor, Florida State College at Jacksonville, FL

Spotlight: Enhancing Independent Mechatronics Curriculum, Partnerships and Pathways
Track 1
Calvert

South Central College, North Mankato Minnesota, and Central Community College in Columbus, Nebraska will share how they partnered to develop web-based, hands-on mechatronic courses for high schools. The panel will expand on strategies for collaboration with other community colleges on similar ATE projects. They will share information on the critical role business and industry continue to play in the project. Come see firsthand the equipment and curriculum used and discover techniques and opportunities for secondary school participation. The team will share proven articulation strategies and lessons learned while delivering hands-on, distance learning courses for college credit.

Doug J. Laven, PI and Mechatronics Faculty, South Central College, MN; **Jerry Muller**, Industrial Tech Coordinator Trainer, Central Community College, NE; **Doug Pauley**, Associate Dean Training Development, Central Community College, NE

SESSION TRACKS

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Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

9:30 – 10:20 A.M.
SPOTLIGHT & SYNERGY SESSIONS

Synergy: EARTh Center: Amplifying ATE Projects with Enhanced Services & Opportunities
Track 1
Hampton

Engage with us in exploring the variety of services and opportunities the Environmental and Natural Resource Technology (EARTh) Center can provide to support ATE projects. In this session, attendees will learn about EARTh's expanded professional services, including: virtual training simulations, instructional design, DACUM facilitation, and mentoring. Additional topics covered in the session will include an unveiling of the newly completed *Defining Environmental Technologies Report*, and an overview of new professional development opportunities.

Andrew McMahan, Director, EARTh Center, Central Carolina Community College, NC; **Josh Webb**, AVR Manager, Eastern Iowa Community College, IA

Synergy: The Journal of Advanced Technological Education (J ATE): Student & ATE Team Publications
Track 1
Cabinet

The Journal of Advanced Technological Education (J ATE) is a peer-reviewed academic journal produced by and for the ATE community. Come to this session to learn about and discuss peer-reviewed publishing related to undergraduate research experiences (UREs), ATE-supported work at community and technical colleges, and the pilot programs developed to support both (J ATE URE & J ATE Connect). Hear from community college student authors and J ATE Connect writer-coaching teams about their experiences in publishing.

Jared Ashcroft, PI, Micro Nano Technology Education Center (MNT-EC), Pasadena City College, CA; **Tanya Faltens**, NCN Assistant Director of Education and Community Partnerships, Purdue University, IN; **Peter Kazarinoff**, Faculty and Co-PI, MNT-EC, Portland Community College, OR; **Karen Leung**, Biotechnology Instructor, City College of San Francisco, CA

Synergy: Silicon Photonics Training for Community College Faculty
Track 1
Palladian

This session will introduce a new ATE Consortia awarded in July 2023, the Northeast Consortium for Advanced Integrated Silicon Technologies (NCAIST), with the mission of STEM-skilling educators for advanced silicon manufacturing of Si-based electronic-photonic integrated circuits (EPICs). Working with AIM Photonics, a U.S. Manufacturing Innovation Institute (MII), NCAIST will accelerate the transition of technician education content and teaching methodologies from key AIM-affiliated U.S. universities to community and technical colleges. Hands-on activities, using a teaching kit developed by AIM Photonics will introduce the modules and lab activities that can be embedded in the classroom.

Stephen Adamshick, Professor, Western New England University, MA; **Robert Geer**, Director, NCAIST, SUNY Poly, NY; **Nicholas Massa**, Professor, Springfield Technical College, MA; **Abe Michelen**, Executive Director, NCAIST, SUNY Poly, NY

Synergy: Designing Summer Programs to Increase Enrollment and Engagement
Track 2
Congressional

Summer programs are an effective way for student on-ramping that can energize students, increase enrollment, and draw awareness into new fields of study. The County College of Morris (NJ) hosted their first four-day, Summer Institute in Data Science. The institute introduced high school students to data science technologies and concepts using R, Python, and Tableau. The College of Southern Nevada hosted its first week-long Cloud Computing boot camp for information technology students. During this session, participants will learn about the projects, agendas, and expenses of both models—and the facilitators' recommendations for implementation and improvement.

Karen Ahern, Professor, Networking Program Director, College of Southern Nevada, NV; **Kelly Fitzpatrick**, Professor of Mathematics, County College of Morris, NJ

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

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Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

Synergy: Expanding Geospatial Technology Education with Students and Alumni

Track 2

Governors

As the demand for skilled professionals in geospatial technologies continues to rise, institutions must adapt their educational approaches to keep pace with industry needs. This session provides a case study that explores the dynamics of the geospatial programs at Portland Community College. The main strategy is incorporating students and alumni as active participants in recruitment, retention, and extension projects. By involving students in real-world applications, such as an exclusive UAS internship with a government agency, they gain practical experience in geospatial concepts. Simultaneously, alumni can serve as mentors and guest lecturers, enriching the learning experience for current students.

Christina Friedle, Geography Faculty and Department Chair, Portland Community College, OR; **Lorena AC Nascimento**, Geography Faculty, Portland Community College, OR

Synergy: Enhancing Employability Skills Across Disciplines

Track 2

Blue Room

The Necessary Skills Now (NSN) Network, an ATE coordination network, facilitates collaboration between educators and employers to improve the employability skills of entry-level technicians across STEM disciplines. NSN assists faculty in sharing resources, exploring effective teaching methods, and collaborating with local employers to help students improve critical workplace skills such as teamwork, problem-solving, communication, and dependability. Join members of our current faculty cohort for a lively discussion of challenges and promising practices in this real-time resource-sharing session. Leave with new strategies and actionable opportunities for future collaboration.

Marilyn Barger, Senior Education Advisor, Florida Advanced Technological Education Center, FL; **Hope Cotner**, President/CEO, Center for Occupational Research and Development, TX; **Marci Gale**, Mechatronics Faculty Lead, Central Virginia Community College, VA

Spotlight: Industry Partnerships: Leveraging Campus Resources, Weathering Campus Change

Track 3

Ambassador

Forming and sustaining strong, productive relationships between our skilled technical workforce education programs and the employers and industries they support is crucial to producing right-skilled, ready-to-work graduates. Join us for this panel of educators who have successfully sought out and leveraged campus-based offices and services to help them with the work of initiating and sustaining these partnerships, and to hear their strategies for weathering the institutional "sea changes" that can rock the industry-program partnership boat.

Jennifer Clemons, Co-PI, CREATE, Delaware Technical and Community College, DE; **Mel Cossette**, Executive Director, PI, MatEdu, Edmonds College, WA; **Mary Slowinski**, PI, Working Partners Project & Workshops, Bellevue College, WA; **Sheela Vemu**, Associate Professor of Biology, Waubonsee Community College, IL

Spotlight: Wastewater Monitoring in the Context of Climate Change

Track 3

Capitol

As climate change continues to impact all aspects of life, our use of water and materials becomes more and more important. Professors and public servants that have worked in the fields of wastewater and solid waste monitoring, and who see the promise for careers in biogas production, biosolid application, and wastewater monitoring will share their experiences. Attendees will learn about the varied wastewater related job opportunities and educational pathways available in San Antonio and New York City and how they reflect trends nationwide that lead to well-paid, good jobs that are critically necessary to maintain and improve green infrastructure and operations.

Olga Calderon, Professor of Biology, LaGuardia Community College, CUNY, NY; **Samantha MacBride**, Assistant Professor, Baruch College School of Public Affairs, NY; **Davida Smyth**, Associate Professor, Texas A&M University San Antonio, TX; **Monica Trujillo**, Professor of Biology, Queensborough Community College, NY

9:30 – 10:20 A.M. SPOTLIGHT & SYNERGY SESSIONS

Spotlight: Diversity, Equity, & Inclusion in ATE Evaluation: Case Studies of 3 ATE Projects
Track 4
Empire

This session will share information on research conducted from 2018-present that examines how ATE projects have defined and measured diversity, equity, and inclusion (DEI) to promote broadening participation in STEM. In 2022, the research team recognized the need for collaborative discovery on operationalizing DEI within ATE projects and evaluation practices, so this year three ATE projects were engaged in case studies, undergoing reflective practice and action research using a DATA-DATA model. Through this session, each project case will share reflections on the process of centering DEI in their ATE evaluations. Participants will walk away with lessons learned, insights, and strategies to engage with DEI in their work.

Terryll Bailey, President, The Allison Group, WA; **Jalil Bishop**, Mission Facilitator, Equity Research Cooperative, PA; **Ayesha Boyce**, Associate Professor, Arizona State University, AZ; **Sondra LoRe**, Director, Center for Academic Research & Excellence, Chattanooga State Community College, TN; **Jennifer Lynberg**, Assistant Professor of Special Education, University of Tennessee at Chattanooga, TN; **Tiffany Tovey**, Director, Office of Assessment, Evaluation, and Research Services, UNC Greensboro, NC

Synergy: Exploring the Success Value of Experiential Learning Activities
Track 4
Embassy

This session shares a weighting system for experiential learning and their values in two-year students' outcomes. Defined high impact practices do not include effective support like social and professional networks; and they are not weighted by their relative contribution to student success. In this session, participants share their effective practices and value for student success. Then, participants will review a two-year IT student's interview transcript to compile factors that facilitated student success. Finally, using a Q-sort method, attendees will rank the practices that positively influence student outcomes.

Faye R. Jones, Faculty Researcher II, Florida State University, FL; **Marcia A. Mardis**, Professor and Associate Dean of Research, Florida State University, FL

10:30 A.M. – 12:15 P.M. ATE CONNECTS SESSION I & REFRESHMENTS

Agricultural and Environmental Technologies
Biological and Chemical Technologies
General Advanced Technological Education
Information and Security Technologies
Exhibit Hall

ATE Connects is a key component of the conference and offers ATE projects and centers dedicated time to network with participants, explore the ATE community, and engage in the sharing of resources. Taking place over two sessions, ATE Connects features more than 240 projects and centers through "Conversation Hubs" organized by STEM discipline area. Join us for these lively sessions to engage in networking, information sharing, and community building! In addition, be sure to check out the refreshments; participate in a hands-on and interactive working station focused on Connection, Collaboration, and Innovation; and pick up an ATE Connects game card as you enter the Exhibit Hall to be eligible for a prize drawing!

12:15 - 12:30 p.m. ATE Connect Session I Breakdown
Exhibit Hall

12:15 - 1:15 p.m. Networking Lunch
Regency

1:30 – 2:20 P.M. SPOTLIGHT & SYNERGY SESSIONS

Spotlight: ATE Best Practices for the Convergence of Disciplines
Spotlight: Track 1
Palladian

Because the lines between disciplines are becoming more and more blurred, it is important that a modern STEM technician receive a broad spectrum of education and training. This session to be co-hosted by the Center for Aviation and Automotive Technological Education (CA2VES), the CREATE Energy Center, the EARTh Center, and the National Electric Vehicle Consortium (NEVC) focus on current best practices in training across disciplines. Professional development, curriculum, and other resources in the fields of cyber, environmental science, AR/VR, EV, automotive, aviation, and energy will be discussed. Followed by a discussion on identifying gaps and opportunities for future collaboration.

Kevin Cooper, PI, NEVC, Indian River State College, FL; **Andy McMahan**, Director, Central Carolina Community College, NC; **Rebecca Short**, Director of Operations, CA2VES, Clemson University, SC; **Ken Walz**, Director and PI, CREATE Energy Center, Madison Area Technical College, WI

Synergy: Approaches to Embedding Creativity into Technician Education

Synergy: Track 1

Ambassador

Employers increasingly report that students lack the problem-solving skills required to succeed in emerging technical fields. One critical component of the problem-solving process is creativity, or the ability to effectively ideate a broad range of potential solutions to a given problem. During this session, facilitators from two interdisciplinary design labs will explain the role of creativity in technician education and provide examples of pedagogical strategies to integrate creativity into the classroom. In particular, facilitators will draw techniques from the design thinking approach to problem solving.

Elysia Contreras-Springer, Grant Director, NorthWest Arkansas Community College, AR; **Christopher Russell**, IET Project Manager, Northern Virginia Community College, VA; **Richard Sewell**, Fabrication Lab Coordinator, Northern Virginia Community College, VA

Synergy: Mobile Way of Learning: Pathway to Student Success

Track 1

Hampton

A high number of high school and community college STEM instructors and students—in rural Kentucky and Tennessee—were provided hands-on opportunities to learn the latest manufacturing technologies through a mobile learning platform developed and implemented via an NSF ATE award. Learning modules were developed with a MOOC concept and made accessible via QR code. Training programs were conducted in both states and thousands of STEM students and teachers were trained with educational and hands-on mobile training resources. This session will share best practices, the impact of this unique model, and benchmark these mobile way learning practices with online and in-person delivery of similar content.

Ismail Fidan, Professor of Manufacturing Technology, Tennessee Technological University, TN; **Elaine E. Kohrman**, Director of Grants, Somerset Community College, KY; **Eric Wooldridge**, Professor of Advanced Manufacturing, Somerset Community College, KY

Synergy: Exploring Innovative Faculty Development Methods

Track 1

Executive

Community colleges nationwide face challenges in recruiting, hiring, and retaining STEM faculty. A pivotal step in engaging these faculty members lies in offering development opportunities tailored to enhance their expertise and skills. Such opportunities not only motivate them to become part of a collaborative community of practitioners but also introduce them to new and emerging teaching strategies for the classroom. Over the past decade, the NCyTE Center and its partners have successfully run a national cybersecurity faculty development academy. During this session, their team will present innovative approaches to engage both new and seasoned faculty members, inviting attendees to actively participate in the dialogue. Together, we'll delve into conventional faculty development practices and brainstorm fresh, inventive methods to further equip our community college educators.

Kristine Christensen, Professor, Computer Information Systems, Moraine Valley Community College, IL; **Mike Qaissaunee**, Chair & Professor, Engineering and Technology, Brookdale Community College, NJ; **John Sands**, Co-PI, NCyTE Center, IL

Synergy: Discussing an Engineering Technology Bridge Program's Structure and Curriculum

Track 1

Capitol

This session shares and discusses a model summer bridge program, which is a targeted summer enrichment program that offers college credit to a targeted group of pre-college students in engineering technology. Facilitators will provide details on the program implementation including student recruitment, application, and selection process. The replicable course objectives and curriculum will be presented highlighting the student development course, industry site visits, OSHA 10 certification, and engineering technology hands-on lessons. The evaluator report and student feedback will highlight both the pros and cons after two years of implementation.

TJ Ciccone, Faculty, Data Center Operations, Northern Virginia Community College, VA; **Jim Crane**, STEM Coordinator, Northern Virginia Community College, VA; **Josh Labrie**, Director NOVA SySTEMic, Northern Virginia Community College, VA

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

1:30 – 2:20 P.M.
SPOTLIGHT & SYNERGY SESSIONS

Synergy: Community Colleges Co-Operating to Improve Learning for Technology Students
Track 2
Governors

In this session, presenters will discuss approaches to improving student learning, especially regarding new and arriving technology. There is a skills gap not only among students but also among faculty. Faculty tend to become isolated from the latest industry trends; and this session aims to "fill some of those holes." The benefits and synergy that can be obtained when community colleges work together instead of competing against one another will be discussed. Strategies and techniques for improving student learning that work or have the potential to work will also be discussed.

Genaro Duarte, Subject Matter Expert, Dave Syverson Auto Center, MN; **Jack Longress**, Instructor, Riverland Community College, MN; **Shannon Mohn**, Instructor, Minnesota State Technical and Community College; MN; **Dave Syverson**, Owner, Dave Syverson Auto Center, MN

Spotlight: Finding their Way: Student Pathways into Technician Programs & Careers
Track 2
Cabinet

What influences community college technician student decision making about programs and careers? This session synthesizes national student data with case study analysis to explore these influences. Presentation of the role of demographic factors, workplace experiences, and early interest/hobbies will be featured. This information would appeal to community college practitioners interested in how students of various backgrounds make decisions, as they work to set these students up for success in technician programs and careers.

Danette Coughlan, Department Chair, School of Information Technology, Ivy Tech Community College, IN; **Eliza Peterson**, Researcher, Education and Employment Research Center, Rutgers University, NJ; **Sam Scovill**, Researcher, Education and Employment Research Center, Rutgers University, NJ; **Will Tyson**, Associate Professor of Sociology, University of South Florida, FL

Synergy: Co-Designing Work-Based Learning Simulations in Biomanufacturing
Track 2
Empire

In collaboration with community college and industry partners, CAST is creating a career guidance curriculum for the biofabrication industry and biomanufacturing industry more broadly. CAST's eportfolio is used with Biofab Explorer, our career exploration web resource, creating an interactive instructional and learning environment where students explore the industry and develop and document industry skills. Biofab Explorer is enhanced with work-based learning (WBL) simulations that develop industry relevant skills across career clusters, including biotechnology, manufacturing, and engineering. The elements of the WBL simulations meet the Perkins requirements for CTE work-based learning.

Sam Johnston, Chief Postsecondary and Workforce Development Officer, CAST, MA; **Dan Larochelle**, Advanced Manufacturing Department Chair, Manchester Community College, MA

Spotlight: Increasing the Number & Diversity of Cybersecurity Techs in Rural North Carolina
Track 3
Calvert

This project addresses the critical regional and national need for skilled cybersecurity professionals by collaborating with a high school CTE program, business, and industry to produce cybersecurity technicians. Robeson Community Colleges' IT – Cyber Security and Network Management and IT Cyber Security certificate credentials allow students to earn credits toward an AAS degree while completing an industry-recognized certificate in cybersecurity. Student internships with local businesses and organizations increase persistence and completion rates. Learn about promising strategies and lessons learned for engaging and retaining IT technicians in rural areas.

Loretta Allen, Instructor, Robeson Community College, NC; **Michael Jacobs**, Instructor, Robeson Community College, NC; **Louis McIntyre**, Instructor, Robeson Community College, NC; **Lisa G. Steffes**, Grant Coordinator, Robeson Community College, NC

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

Synergy: International Collaboration & Travel
Track 3
Congressional

While ATE focuses on projects that support local to regional workforce needs, ATE does support international travel for students and faculty. Travel can help broaden a student's perspective on career paths; and educators learn what methods and concepts are being taught in other countries. This broadened perspective is important as students today are faced with a global economy and competition for employment from students around the world. Educators must prepare students to be competitive in this changing employment environment. Travel and attendance at international education and industry conferences and visits to industry sites and educational institutions in other countries can help prepare educators to offer students programs that address learning outcomes important to industry. This session will include surprising answers to questions you may not know needed asking as well as suggestions for building international partnerships and organizing a trip abroad.

Sharon Gusky, Professor and PI, Connecticut State Community College, CT; **Ann Johnson**, Associate Director, GeoTech Center, CO

Spotlight: Industry Relationship Strategies: Effectively Navigating the Give and Take
Track 3
Blue Room

In this session, participants will hear proven strategies for initiating and maintaining strong industry relationships and learn about how to connect to the Manufacturing Extension Partnership (MEP) in their area. Discussions will also focus on tactics that can help a program/campus build a strong pool of adjunct instructors. Additionally, as cyber awareness becomes more critical across all types of industry and in all lines of work, the session will discuss how to utilize micro-credentials and other approaches to build cyber awareness among community college graduates, particularly those pursuing manufacturing-related fields.

Evelyn Brown, Director, Extension Research & Development, North Carolina State University, NC; **Marci Gale**, Mechatronics Faculty Lead, Central Virginia Community College, VA

Synergy: Next Gen Manufacturing Programs and ATE: Strategies & Collaborations
Track 5
Diplomat

Join representatives from the National Center for Next Generation Manufacturing (NCNGM) for discussions focused on advanced manufacturing education. Topics will include advanced manufacturing programs and NSF ATE grants. Session facilitators will provide overviews of their strategies for program development as well as managing grants; but they also want to hear from you! Attendees should come prepared to share their proven strategies and resources for program and curriculum development, student recruitment, and professional development. This session will also provide the opportunity to find new collaborators within the NSF ATE community.

Tim Baber, Department Chair, Welding Technology, College of the Canyons, CA; **Jerry Muller**, Industrial Tech Coordinator Trainer, Central Community College, NE; **Karen Wosczyna-Birch**, Executive Director and PI, National Center for Next Generation Manufacturing, CT

2:30 – 3:00 P.M.
DEMONSTRATION SESSIONS

Demo: Digital Learning and VR Supporting New Aircraft Maintenance Standards
Diplomat

CA2VES has partnered with the Aviation Technician Education Council (ATEC) to support the online learning needs of students in aircraft maintenance programs using the updated ACS standards. With changes in how students can access course content and the ability for institutions to offer the Part 147 program in an online format, a hybrid approach is ideal for the future of aircraft maintenance education. CA2VES will demonstrate how to access the new curriculum modules and VR simulations through the Educate Workforce platform and provide information on incorporating these tools into an existing curriculum.

Jeff Bertrand, Director of Visualization, CA2VES, Clemson University, SC; **Rebecca Short**, Director of Operations, CA2VES, Clemson University, SC

2:30 – 3:00 P.M.
DEMONSTRATION SESSIONS

Demo: Building Cybersecurity Skills: Exploring a Cyber Range through Practice
Ambassador

This demonstration session aims to provide participants with theoretical and practical knowledge for creating and implementing a Cyber Range within MassBay's Networking Laboratory environment. It offers a valuable learning opportunity for individuals of all skill levels by combining hands-on experience with comprehensive instructions. Participants will learn about the network environment, equipment, software, and configurations such as DNS and file servers, Hypervisor, Virtual Machines (VM), and XEN orchestra appliance to manage VMs. Participants will obtain instructions for creating a small Cyber Range and listing of materials and equipment to make their own Cyber Range.

Dalia Diaz, Student, Massachusetts Bay Community College, MA; **Giuseppe Sena**, Professor, Massachusetts Bay Community College, MA

Demo: Pathways for Exploring Biotech Careers and Finding Employer Locations
Empire

Biotechnology careers pay well and offer benefits; yet biotechnology programs have difficulty recruiting students. Many faculty attribute this challenge in part to a lack of career awareness. We are addressing this by providing information about different kinds of careers in biotechnology. We have developed four paths for exploring Biotech-Careers.org: people, places, things, and jobs, and have observed positive results from student surveys after giving presentations. In this session, we will demonstrate four pathways for exploring Biotech-Careers.org and how instructors can obtain a table of biotechnology-related employers in their area and the business topics those companies address.

Sandra G. Porter, President, Digital World Biology LLC, WA; **Todd Smith**, Chief Technology Officer, Digital World Biology LLC, WA

Demo: STEMploying the Future: Using AR/VR to Redefine Workforce Preparedness
Palladian

Embark on an exciting journey into the world of augmented and virtual reality, where cutting-edge technology meets the needs of modern education in STEM and workforce preparedness. In this engaging session, discover how AR/VR technology compares to other teaching and learning tools, its strengths and weaknesses, and best practices for its implementation in STEM, CTE, and workforce development. Through this session, participants will gain valuable insights into the boundless potential of AR/VR to transform STEM education, nurture innovation, and empower the future workforce with the skills needed to thrive in an ever-evolving world.

Michael Carbenia, Senior Executive Director of Workforce, zSpace, Inc., CA

Demo: Advanced Design Simulations to Support the Renewable Energy Workforce
Hampton

Participants in this session will be guided through a complete renewable energy design process, including the 3D modeling of a building, installation of solar panels, energy analyses, and generative design. This will notably include a visibility analysis that ensures socially acceptable solutions. The software being utilized includes both design and simulation tools in a single package for simplicity, is open-source and Web-based to maximize accessibility, and is equipped with generative AI capabilities to streamline implementation. These collective features establish this software as a citizen science platform that encourages broad public participation in renewable energy solutions.

Aaron Hanai, Associate Professor, Engineering, Kapi'olani Community College; HI; **Charles Xie**, Chief Scientist, Institute for Future Intelligence, Inc., MA

Demo: BETA Skills Summer Industry Fellows Program
Calvert

Five community college instructors were BETA Skills Industry Fellows for eight weeks at industry sites in the summer of 2023. The BETA Fellows were placed at the following sites: Javara, Carolina Liquid Chemistries, Wake Forest Institute for Regenerative Medicine, Keranetics, and the Pfizer Biomanufacturing site in Sanford, NC. This session will demonstrate how this fellowship program was created and describe some of key learnings from the experience.

Gary Green, Wake Forest Institute for Regenerative Medicine (WFIRM), NC; **Russ H. Read**, Executive Director, National Center for Biotechnology Workforce, NC

Demo: Arduino Microcontroller Demonstration
Blue Room

This Arduino Microcontrollers demonstration session will provide participants with introductory microcontroller theory and operation, a review of Arduino curriculum, and a demonstration of three to four hands-on laboratory activities. Participants will observe how to write and modify code for Arduinos, interface sensors, and output devices; and build, test, and troubleshoot circuits. Each participant will be introduced to the SparkFun Inventor's Kit guide and will also observe demonstrations of hands-on laboratory activities. The presenter will also discuss a potential semester-based course plan.

Gregory Kepner, Co-PI, Micro Nano Technology Education Center (MNT-EC), IA

Demo: Strategies for Recruiting High School Students to Your Biotechnology Program
Governors

Enrollment to biotechnology pathways has been a continuing challenge for many programs. Although more and more high school students are taking dual enrollment biotech courses, they often do not matriculate to the colleges offering continuing pathways in biotechnology. This session will share strategies used to engage and recruit dual enrollment high school students—and include specific visual tools and activities that can be easily modified to match your program's pathway and in your own high school recruitment efforts. In addition, presenters will share a framework for a two-week summer course that was the focus of our recruitment outreach with students.

Michael Fuller, Pathways Lead, BABEC, CA

Demo: Assessing & Evaluating Partnerships: Using the Partnership Rubric
Congressional

This session will demonstrate the use of a partnership evaluation tool designed to assess the depth and range of partner engagement. The Partnership Rubric/Dashboard, developed collaboratively by The Rucks Group and the NSF-ATE funded Working Partners Project & Workshops, facilitates the collection of partner involvement data that, in turn, can shape and improve industry relationships. Through presentation and discussion, attendees will gain insights on how to use this adaptive tool, and share evaluation procedures that support and deepen productive partnerships.

Mary Slowinski, PI, Working Partners Project & Workshops, Bellevue College, WA

Demo: The EVALUATE-UR Method: There is a Version Just Right for You and Your Students
Executive

This session will introduce the Evaluate-UR method that is used for evaluating programs in different educational settings including independent research, classroom-based research, engineering/design competitions, and internships. The EvaluateUR method serves as a tool for students, helping them increase their academic self-awareness and the knowledge and skills valued in the workplace. Participants will learn about features that include a dashboard for keeping track of students' progress through the steps, automated messages with instructions, built-in data package, and activities for increasing metacognition. Opportunities to help pilot new variants of the method will be explained.

Jill Singer, SUNY Distinguished Teaching Professor, SUNY Buffalo State University, NY

3:00 - 3:30 p.m. ATE Connects Session II - Set-Up
Exhibit Hall

3:10 – 3:40 P.M. DEMONSTRATION SESSIONS

Demo: Build Your Own VR Training World & Level Up Your Technician Program & Recruiting
Palladian

Technical programs are expensive, making it difficult for institutions and instructors to effectively educate large numbers of students. In this session, presenters will demonstrate a process that combines low-cost virtual reality hardware, free software, and online teacher training to build new custom VR modules for educational and recruiting purposes. These modules simulate specific skills and hardware that are often bottlenecks of cost, time, or safety. VR allows students to accelerate the development of these necessary skills without the limits of equipment access or funding. Session participants will be able to test these modules and experience the free software and processes used to create them.

Mel Cossette, PI, MatEdu, Edmonds College, WA; **Eric Wooldridge**, Professor of Advanced Manufacturing, Somerset Community College, KY

Demo: Teaching Technician Troubleshooting with Mini Industry 4.0 Factories
Hampton

In this demonstration, participants will discover how Bridgerland Technical College developed low-cost training materials to scale automation technology instruction in the Intermountain West. Session attendees will see how different institutions have implemented these low-cost automation lab materials. Additionally, presenters will underscore the demand for low-cost trainers that simulate systems and the low-cost mini factory they have built to satisfy industry need. Attendees will walk away with resources to adopt and adapt these materials at their respective institutions.

Matt Fuller, Automation Technology Department Head, Bridgerland Technical College, UT; **Mason Lefler**, Associate Vice President for Educational Innovation, Bridgerland Technical College, UT

3:10 – 3:40 P.M.
DEMONSTRATION SESSIONS

Demo: Interested in Teaching Quantum – Where to Start?
Blue Room

Transitioning the industry from quantum research labs to the commercial environment requires a sizable technician workforce with skills and competencies originating from quantum mechanics. And yet, this poses a significant challenge as quantum science is considered a difficult and counterintuitive subject. In this demonstration, we will discuss how quantum mechanics—which as the famous quantum scientist Richard Feynman once said, "nobody fully understands"—can be brought to the technician level. We will also elaborate on quantum technologies' social and economic impact and encourage educators to introduce quantum mechanical concepts into their curricula.

Mo Hasanovic, Associate Professor/Department Chair, Electronics Engineering Technology, Indian River State, FL; **Anca Sala**, Professor, Kettering University, MI

Demo: Water DROPS – Developing VR Training for Water Operators
Diplomat

Water treatment operators are essential workforce workers; and they serve as frontline environmental health and safety employees by ensuring people have access to safe water resources. Up to 50 percent of water operators are expected to retire within five years, which will cause challenges in the availability and development of qualified people. The goal of this project is to develop evidence-based, cost-effective, and technology-enabled digital learning resources to improve the quality and quantity of training available to this sector of the workforce.

Jeff Bertrand, Director of Visualizations, Center for Workforce Development, Clemson University, SC; **Joshua Castleberry**, Dean, Workforce and Environmental Training, Central Carolina Technical College, SC

Demo: Responding to Industry 4.0 Driven Required Skills with Edge Devices
Ambassador

Industry 4.0 elements supporting manufacturing floor environments include sensors and actuators. This new equipment makes technicians face integrated combinations of previously isolated skills. This demonstration will review Industry 4.0-driven skill sets; provide details of the edge-based trainers developed by the colleges; demonstrate specific equipment control example applications of the trainers; indicate specific Future of Work skill areas with specific skill sets; and facilitate a discussion among attendees on potential applications of these tools within the ATE-supported college community.

Marilyn Barger, Senior Education Advisor, Florida Advanced Technological Education Center (FLATE), FL; **Richard Gilbert**, Technology Advisor, FLATE, FL

Demo: Biotechopoly™: Antibody Edition – A Board Game about the Business of Biotech
Empire

Biotechnology companies that make antibody drugs must hire the right people and complete multiple phases in order to bring their drugs to market. The Biotechopoly™ game teaches players about different careers in biotech companies and about industry-specific concepts in drug development. Along the way, players experience luck and karma, take risks, and encounter the trials and tribulations of developing biotechnology products. Students who have tested the game tell us Biotechopoly™ is fun, educational, engaging and, at times, harsh. Come play the game and see what the excitement is all about!

Sandra G. Porter, President, Digital World Biology LLC, WA; **Todd Smith**, Chief Technology Officer, Digital World Biology LLC, WA

Demo: Developing Undergraduate Research Opportunities with Industry Partnerships
Calvert

Student research experiences have long been considered a high impact practice in higher education, and InnovATEBIO is committed to ensuring that all students have access to these opportunities. InnovATEBIO's Student Research Hub utilizes best practices that have been identified by the Community College Undergraduate Research Initiative (CCURI) and the Council on Undergraduate Research (CUR). In this session, participants will learn how InnovATEBIO is supporting their partner institutions in developing industry relevant research projects that can be embedded into technology programs.

Linnea Fletcher, Department Chair, Biotechnology, Austin Community College, TX; **James Hewlett**, Professor of Biology, Finger Lakes Community College, NY

Demo: Licensing and Archiving: How it Works
Governors

Making the deliverables of your grant available through the ATE Central resource portal ensures discoverability and long-term access to your work. Adding a Creative Commons license before submission can encourage others to further share, use, and build upon a work that you created. Please join ATE Central staff as they demonstrate how to select and affix Creative Commons licenses to sample resources and how to submit those resources to ATE Central via the archive submission form.

Kendra Bouda, Metadata and Information Specialist, Internet Scout Research Group, UW-Madison, WI; **Corey Halpin**, Software Engineer, Internet Scout Research Group, UW-Madison, WI

Demo: IR-Informed Evaluation to Assess Student Outcomes and Program Success
Congressional

Student data obtained from Institutional Research (IR) offices is an often-overlooked evaluation data point. In this demonstration, we explore the Backtracking Technique, an IR-informed mixed method, that can be utilized to evaluate student outcomes and program success. We share performance metrics better aligned to capture the mission of two-year colleges, and the Backtracking Technique's phases that can be conducted separately or jointly. The demonstration will also cover evaluation elements such as effectiveness, efficiency, impact, and sustainability.

Faye R. Jones, Faculty Researcher II, Florida State University, FL; **Marcia A. Mardis**, Professor and Associate Dean of Research, Florida State University, FL

Demo: Celebrating ATE's Evolution through Findings from the ATE Survey
Executive

Join us in celebrating 30 years of ATE with a captivating session exploring trends and transformations in ATE projects. We will share longitudinal insights from the ATE Survey, which has been gathering data since 2000. This session aims to shed light on the crucial role of the ATE Survey as a powerful tool for collecting valuable data on ATE grantees' activities and achievements. By examining the survey results and trends spanning three decades, participants will gain an understanding of how ATE has evolved and how they can explore the survey data to answer questions unique to their project.

Lyssa Becho, PI, EvaluATE, Western Michigan University, MI; **Erika Sturgis**, Data Analyst, EvaluATE, Western Michigan University, MI

3:45 – 5:30 P.M. ATE CONNECTS SESSION II & REFRESHMENTS

Advanced Manufacturing Technologies
Applied Research in Technician Education
Engineering Technologies
Micro & Nanotechnologies
Exhibit Hall

ATE Connects is a key component of the conference and offers ATE projects and centers dedicated time to network with participants, explore the ATE community, and engage in the sharing of resources. Taking place over two sessions, ATE Connects features more than 240 projects and centers through "Conversation Hubs" organized by STEM discipline area. Join us for these lively sessions to engage in networking, information sharing, and community building! In addition, be sure to check out the refreshments; participate in a hands-on and interactive working station focused on *Connection, Collaboration, and Innovation*; and pick up an ATE Connects game card as you enter the Exhibit Hall to be eligible for a prize drawing!

5:30 – 5:45 p.m. ATE Connects II–Breakdown

FRIDAY, OCTOBER 27

7:00 a.m. - 12:00 p.m. Conference Registration
West Conference Foyer

7:15 - 8:30 a.m. Breakfast
Regency

7:30 - 8:30 a.m. Breakfast Roundtables
Regency

To join a Breakfast Roundtable, look for the numbered tables starting at the front, left of the Regency Ballroom closest to the stage. For Breakfast Roundtable descriptions, see page 31 of the conference program.

7:30 - 8:30 a.m. ATE Student/Alumni Recognition Breakfast
(By Invitation Only)
Empire

8:45 - 10:00 a.m. Plenary Session
Regency

V. Celeste Carter, Lead ATE Program Director, National Science Foundation, VA

Rosalyn Hobson Hargraves, Division Director, Division of Undergraduate Education, National Science Foundation, VA

Scott Jensen, Director of Workforce Strategy for CHIPS, U.S. Department of Commerce, DC

Augmented Reality and the Future of Education

Keynote Speaker: **Dr. Helen Papagiannis**, Best-selling Author of *Augmented Human: How Technology is Shaping the New Reality*, and Founder, XR GOES POP

Our digital future is no longer a distant promise, but a rapidly growing industry with real-world clout. Consider Apple unveiling their much-anticipated Augmented Reality (AR) Vision Pro headset that seamlessly blends digital content with the physical world—it is introducing a whole new era of computing. In this cutting-edge talk, Dr. Papagiannis shares the significance of AR technologies and how it is further being organically integrated into our everyday lives. What opportunities does this seismic shift present for business, industry, and higher education? How can we contribute to and help define this new technological era? And, how will it forever change the way we live, learn, work, and play?

10:10 AM – 12:00 P.M.
HIGH IMPACT WORKSHOPS

Workshop: Using Hackathons to Tackle Challenges in Technological Education
Track 1
Blue Room

Hackathons are increasingly being used to create solutions for big problems and may be helpful for the ATE community. In this workshop, presenters will discuss the use of Antibody Engineering hackathons to develop undergraduate research projects, which had promising results. Students, faculty, and industry members worked in teams and generated multiple projects. Presenters will share outcomes from three events, then present a mini hackathon, followed by reporting and a discussion. Attendees will divide into teams, choose roles, and create strategies to address ATE-relevant topics such as: student recruitment/retention, stakeholder engagement, implementing tools for industry demands, virtual/hybrid teaching, and diversity, equity, and inclusion.

Kamajaya Aron, Assistant Professor, Los Angeles Pierce College, CA; **Margaret Bryans**, Professor, Montgomery County Community College, PA; **Sandra G. Porter**, President, Digital World Biology LLC, WA; **Sheela Vemu**, Associate Professor of Biology, Waubonsee Community College, IL

Workshop: A Multidisciplinary Approach to Teaching Cybersecurity
Track 1
Empire

The cybersecurity sector has seen unparalleled growth over the past two decades, fueled by increasing reliance on digital technologies and the associated risks. As a result, the cybersecurity workforce is now an integral part of every sector in the U.S. economy. This integration necessitates a shift in how academic institutions train cybersecurity technicians. Notably, many cybersecurity roles demand expertise beyond just IT and computer science. A cybersecurity technician should be well-versed in business operations, legal frameworks, risk management, product assessment and acquisition, statistics, engineering, supply chains, manufacturing, healthcare, among other areas. This workshop will highlight the methods the NCyTE Center employs to equip community college educators with the tools to merge these multidisciplinary subjects into modern cybersecurity curricula. Participants in this session will be given access to free tools and encouraged to build their own custom activities.

Chuck Bales, Professor, Moraine Valley Community College, IL; **Kristine Christensen**, Professor, Computer Information Systems, Moraine Valley Community College, IL; **Jiri Jirik**, Director, EPNC, Moraine Valley Community College, IL; **John Sands**, Co-PI, NCyTE Center, IL

10:10 AM – 12:00 P.M.
HIGH IMPACT WORKSHOPS

Workshop: Reaching Out to Recruit: Valuing DEIA while Building a Biotechnology Program

Track 2

Blue Room Prefunction

Despite the need for skilled workers, many technical programs need help recruiting students into new programs. Research indicates that many high school students are unaware of careers in fields like biotechnology and often rely on their families, friends, or teachers when making college and career decisions. In this interactive workshop, participants will engage with data from the BIOTECH Pathways program and examine how it involves students, families, and educators through hands-on outreach and professional development. Attendees will explore how the project engages with program evaluation to increase diversity, equity, inclusion, and accessibility (DEIA) impacts and leave with strategies for use in their own programs.

Sondra LoRe, Director, Center for Academic Research and Excellence, Chattanooga State Community College, TN; **Jaclyn A. Madden**, Associate Professor of Biology and Biotechnology, Harford Community College, MD

Workshop: Partnerships to Support Semiconductor Manufacturing Technical Workforce

Track 3

Palladian

Recent announcements of the CHIPS and Science Act initiatives show a great need to increase participation in the semiconductor manufacturing skilled technical workforce. The need for technician level workers is well documented. This workshop will bring together stakeholders from community colleges, universities, government agencies, and industry to discuss CHIPS Act implementation strategies to best support the semiconductor workforce. Updates will be shared on opportunities with regards to the CHIPS Act and presentations from partners, such as the American Semiconductor Innovation Coalition (ASIC), NIST, the National Nanotechnology Coordination Office (NNCO), and others.

Jared Ashcroft, PI, Micro Nano Technology Education Center (MNT-EC), Pasadena City College, CA; **Bilie Copley**, Program Manager, MNT-EC, CA; **Scot McLemore**, Executive in Residence, Columbus State Community College, OH

10:10 – 11:00 A.M.
SPOTLIGHT & SYNERGY SESSIONS

Synergy: Strategies for Becoming a Leader in the ATE Community and What You Need to Know

Track 1

Executive

This session will provide ATE PIs and Co-PIs with strategies for advancing their knowledge and skills beyond their project(s) and college or organization to become leaders in the ATE community. Attendees will learn the value of longevity in the ATE program (and how to acquire it) and about specific learn-by-doing opportunities with NSF, AACC, JATE, and Mentor-Connect. Engaging activities and real-world examples will equip participants with practical insights and a personal plan of action that can lead to success in ATE and beyond to increase their personal impact on the ATE community and the U.S. skilled technical workforce.

V. Celeste Carter, Lead ATE Program Director, NSF, VA; **Elaine Craft**, PI, Mentor-Connect, Florence-Darlington Technical College, NC; **Ellen Hause**, Associate Vice President, Academic and Student Affairs, AACC, DC; **Peter Kazarinoff**, Faculty and Co-PI, MNT-EC, Portland Community College, OR

Spotlight: Pros and Cons of Microcredentials – Where is the Value?

Track 2

Congressional

Higher education institutions and other credentialing organizations are increasingly offering microcredentials. While many focus on ensuring workforce-relevant skills, microcredentials are highly variable in their structure, purpose, and cost. Featuring representatives of WordCred, a national organization that focuses on connecting credentials and competencies to careers; EduWorks, developers of Skillsync, an AI-enabled virtual assistant that connects employers and colleges for reskilling; and a Florida-based collaborative investigating elements of successful student pathways, this session explores the value of microcredentials, and how they are currently being used.

Isabel Cardenas-Navia, Senior Director of Research, WorkCred, DC; **Marcia A. Mardis**, Professor and Associate Dean of Research, Florida State University, FL; **Robby Robson**, Chief Science Officer and Founder, EduWorks, OR

10:10 – 11:00 A.M.
SPOTLIGHT & SYNERGY SESSIONS

Synergy: Join Our Game-Changing Session for Educators: Empowering Women in Auto & Diesel
Track 2
Capitol

According to the Bureau of Labor Statistics (BLS), only 1.9% of automotive service technicians and mechanics were women in 2019. Wallace State Community College's Diesel Technology Program has successfully increased the number of women in their program from zero to 12 within one year. They achieved this by implementing comprehensive recruitment and retention plans created during a WomenTech Educator's Training. During this session, a case study detailing their successful approach will be released by their partner the National Institute for Women in Trades, Technology & Science.

Anna Beard, Diesel by Distance Project Coordinator, Wallace State Community College, AL; **Donna Milgram**, Executive Director, National Institute for Women in Trades, Technology & Science, CA

Spotlight: Strategically Deepening Employer Engagement for Technical Programs
Track 3
Ambassador

Learn about the benefits for students and communities from colleges that have deepened employer engagement through adoption of the NSF-supported Business & Industry Leadership Team (BILT) model. Hear from a rural college dean who successfully implemented BILT in multiple technical disciplines, a BILT chair that inspired adoption of the BILT culture of innovation across an institution, and a national BILT member that co-led development of emerging technology programs through BILT's structured, repeatable process of job skills prioritization. Take home BILT resources to help ensure your students are workforce ready and your employer partners benefit from a local talent pipeline.

Laura Berry, Dean, North Arkansas Community College, AR; **Aaron Burciaga**, Managing Partner, Data Prime, VA; **Hope Cotner**, President/CEO, Center for Occupational Research and Development, TX; **Shawn Meck**, Plant Manager, Progress Rail, NC

Synergy: Needed Math: Comparing Beliefs of Industrialists, Technical, & Math Educators
Track 4
Governors

Needed Math is a Targeted Research Project to improve alignment of the mathematics taught in two-year technical programs with the mathematics manufacturing technicians use in the workplace. Session leaders will discuss how findings align with those from the ATE CIMI math-in-manufacturing project and compare perceptions of surveyed manufacturing industrialists, manufacturing educators, and mathematics instructors about the importance of math competencies, and the preparedness that the three subgroups believe technicians have.

Bernard Gorman, Faculty, Industrial/Organization Psychology, Hofstra University, NY; **Michael Hacker**, Co-Director, Center for STEM Research, Hofstra University Center for STEM Research, NY; **Paul Horwitz**, Senior Scientist, The Concord Consortium, MA; **Jay Martin**, Professor, Wake Technical Community College, NC; **Gerhard Salinger**, Program Director, National Science Foundation (retired), NM

Spotlight: What PIs Need to Know about Preparing NSF Annual Reports – Now!
Track 5
Diplomat

NSF annual project reports are not yet due, but preparation should begin now. This informative session will guide ATE PIs in preparing for and then efficiently and effectively crafting the annual report for an NSF ATE-funded project. Participants will gain a comprehensive understanding of timelines, reporting requirements, data collection, and key performance indicators. Participants will receive valuable tips on how to prepare a report that aligns with NSF expectations. Easy-to-use tools and resources will be provided for just-in-time support as you prepare for and address this annual grantee requirement.

Lyssa Becho, PI, EvaluATE, Western Michigan University, MI; **Kalyn Owens**, Program Officer, National Science Foundation, VA; **Pamela Silvers**, Co-PI, Mentor-Connect, Florence Darlington Technical College, NC

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

11:10 A.M. – 12:00 P.M.
SPOTLIGHT & SYNERGY SESSIONS

Synergy: Advancing ATE through CCPI Fellows Leadership Program
Track 1
Executive

Leadership with a STEM background and understanding of NSF ATE is the key to building infrastructure at community colleges supportive of ATE grant activities and the technological workforce of a region. The session attendees will learn about the CCPI-STEM Fellows program designed to recognize and support community college faculty, administrators, and others who aspire to lead community colleges to prepare a workforce educated in STEM-related technologies and skills. The attendees will meet with the six Fellows selected last year, who will share their observations and benefits from participating in the Fellows program and future leadership aspirations.

Ashok K. Agrawal, Principal Advisor, Agrawal Advisory LLC, DC; **Elizabeth K. Hawthorne**, Co-PI, CPPI-STEM, Prince George's Community College, MD

Spotlight: Recruitment and Retention: 10 Strategies That Can Work for You
Track 2
Congressional

Diversity, equity, and inclusion, along with broadening participation, are important to educators and employers. Learn about strategies that have positively impacted recruitment and retention of diverse students in technician education classes and programs around the country. These fresh, cost-effective ideas may be just what you need to advance your program now, or that you can incorporate in grant proposal plans. Two experienced technician educators will share what worked for them. You will leave this presentation with specific ideas you can adapt or adopt to increase enrollment and retention in your technician education and related STEM programs.

Esperanza M. Zenon, Professor of Physical Science, River Parishes Community College, LA; **Pamela Silvers**, Co-PI, Mentor-Connect, Florence Darlington Technical College, NC

Synergy: Addressing Workforce Needs in Advanced Manufacturing through Curriculum
Track 3
Governors

As the world of advanced manufacturing continues to modernize, there is a growing need for technicians who are skillful and knowledgeable in increasingly automated environments. With industry insight and through leveraging resources, Columbus State has created an on-campus Collaborative Robotics Center capable of serving students and incumbent workers. This model is designed to expand advanced manufacturing pathway offerings while offering continuing education for professionals.

Erik Aagard, Instructor, Engineering Technology, Columbus State Community College, OH; **Katelin Franklin**, Project Manager, Grants Office, Columbus State Community College, OH

Spotlight: Exploring How Community Colleges Engage in Regional Economic Development
Track 4
Ambassador

This session will share the initial findings of a targeted research project focused on how college technical programs with NSF ATE grants interact with regional economic development. Extensive research of 23 NSF ATE projects and centers, including interviews with principal investigators and their partners has provided indicators of how these grantees are engaged in economic development. Presenters will share their own engagement activities with economic development that supported the project outcomes to solicit audience sharing of their own interactions with economic development.

Marilyn Barger, Senior Education Advisor, Florida Advanced Technological Education Center, FL; **Linnea Fletcher**, PI, InnovATEBio, Austin Community College, TX; **Mason Lefler**, Associate Vice President for Educational Innovation, Bridgerland Technical College, UT; **Michelle Van Noy**, Director, Education and Employment Research Center, Rutgers University, NJ

11:10 A.M. – 12:00 P.M.
SPOTLIGHT & SYNERGY SESSIONS

Spotlight: Developing Effective and Meaningful Evaluation Indicators for Your ATE Project
Track 4
Capitol

Utilizing the experience of two current ATE projects, this session engages participants in a discussion of how ATE projects can move beyond compliance-oriented quantitative evaluation by developing highly descriptive indicators that incorporate qualitative and quantitative data and frames a narrative of project success. Evaluations that revolve around meaningful indicators are a compelling and powerful way to engage a broad community of project stakeholders in an understanding of project work. As the evaluation work unfolds, this in turn provides projects with a basis for formative reflection on project impact, progress toward goals, and the successes that drive project sustainability.

Trentee Bush, Agriculture and Horticulture Instructor, Northeast Community College, NE; **Aaron Hanai**, Associate Professor, Engineering, Kapi'olani Community College, HI; **Brandon Keller**, Agriculture Instructor, Northeast Community College, NE; **Jeff Sun**, Director, Sun Associates, MA

Spotlight: NSF Funding Opportunities for Two-Year Institutions
Track 5
Diplomat

This panel spotlight session brings together three National Science Foundation program officers with experience as two-year faculty who are currently serving in the Division of Undergraduate Education. The panel's discussion will provide an overview of the various funding opportunities available to two-year institutions including ATE, HSII, and S-STEM, and others. Attendees will learn about the goals of the various programs, and how to determine which program best aligns with a specific project idea. Pertinent NSF Dear Colleague Letters will also be discussed.

Rachael Bower, PI, ATE Central, University of Wisconsin-Madison, WI; **V. Celester Carter**, Lead ATE Program Director, National Science Foundation, VA; **Christine Delahanty**, Program Director, National Science Foundation, VA; **Kalyn Owens**, Program Director, National Science Foundation, VA

12:00 p.m. Conference Adjourns

12:15 - 2:30 p.m. Post-Conference ATE Center Directors' Meeting & Lunch
(ATE Center Directors Only)
Palladian

SESSION TRACKS

Track 1. Advancing Technological Education for Impact

Track 2. Engaging STEM Students for Success

Track 3. Initiating & Maintaining Partnerships

Track 4. Conducting STEM Research & Evaluation

Track 5. Sharing Proven Practices in Grant & Program Management

BREAKFAST ROUNDTABLES

FRIDAY, OCTOBER 27 | 7:30 – 8:30 A.M. | REGENCY

Table 1. Out of the Box Recruitment

Myra Elliott, Dean of Strategic Initiatives, Big Sandy Community and Technical College, KY; **Kathryn Miller**, Computer and IT – Cybersecurity Program Coordinator, Big Sandy Community and Technical College, KY

The roundtable discussion will cover several strategies for recruiting high school students and sparking interest in cybersecurity. Our college uses a mobile escape room and Gencyber summer camps to introduce and expand the knowledge of cybersecurity concepts—and the escape room offering can be multidisciplinary.

Table 2. BETA Skills-Microcredentials Professional Development

Russ Read, Executive Director, National Center for Biotechnology Workforce, NC

Come to learn about BETA Skills, which was developed with the Bioscience Core Skills Institute and includes three industry-driven microcredentials, good documentation practices, problem solving, and audit interactions. The microcredentials were inserted into a five-day professional development program for 12 participants.

Table 3. Professional Society Partnerships: Strengthening Collaboration

Rick Polanin, Professor, Co-PI, Weld-Ed, Illinois Central College, IL

Weld-Ed is a consortium of education and industry partners. The key to assuring industry acceptance of students entering the workforce is the validation of the content by industry. The session will describe the development of relationships with professional societies.

Table 4. GeoTech Center Modularization with DEI, GTCM, PD, GeoEdC, & Honor Society

Vince DiNoto, PI, GeoTech Center, Jefferson Community and Technical College, KY

This roundtable will discuss several of the projects by the GeoTech Center. The discussion includes learning modules that faculty can select to build classes linked to competencies, the newly adopted GTCM, educator certification, center professional development, and the student honor society.

Table 5. Sustaining ATE Awards' Core Functions and Senior Personnel

David Tobey, Executive Director/PI, National CyberWatch Center, MD

This roundtable will offer informal conversation about experiences, readiness, and ideas PIs have for sustainability. In the words of the NSF ATE solicitation, "All ATE proposals are expected to communicate a realistic vision and an achievable plan for sustainability."

Table 6. Tools & Strategies to Improve Work Based Learning

Karen Leung, Faculty, City College of San Francisco, CA; **James Lewis**, Project Director, Work-Based Learning Programs, City College of San Francisco, CA

Discuss and share tools and strategies for improving work-based learning (WBL). Learn about practical tools developed, implemented, and assessed for more than six years through a community college-research university collaboration to foster more inclusive WBL experiences.

Table 7. Accessible Eportfolios for Micro Nano Education

Billie Copley, Manager, MNT-EC Center, CA

CAST is collaborating with the Micro-Nano Education Center to embed MNTfolio, a universally designed eportfolio, to help students document and showcase the competencies they are building in their undergraduate course work and research experiences. MNTfolio provides multiple ways for students to collect and share their knowledge, including a folio that can be shared with prospective employers and college admissions officers.

Table 8. Learning from Experience: Sharing Insights on Evaluation Facilitators

Valerie Marshall, Research Associate, Western Michigan University, MI; **Grayson McKewon**, Coordinator, Evaluation and Reporting, Columbus State Community College, OH

Evaluation plays a central role in ATE. It is important to get the most from your evaluation, regardless of your project's stage of implementation. One way to do that is to leverage the evaluation experiences of ATE community members, which is the purpose of this roundtable discussion. Research findings on facilitators to using evaluations for project improvement and accountability will be highlighted and participants will discuss how to apply learning to their own projects.

Table 9. Administratively Challenged to Program Ready: How ATE & Mentor-Connect Changed Us

Patricia Maloney, Manager, Grants and Sponsored Programs, Montgomery College, MD

Montgomery College (MC) has strong STEM programs—but had not participated in the ATE program for over 20 years. In 2020, MC applied to Mentor-Connect, and was accepted to its 2021 program. This helped us to win a New to ATE grant. Learn how we leveraged grants experience and expertise, a lot of support, and innovation and humor to reach our goal and get to year one, and the impact that ATE has had on our other work. Please come and share your own administrative challenges and successes.

Table 10. Designing a Model to Increase Efficacy in Guitars, Rocketry, and Robotics

Shellie Banfield, Director, Davis Center, Santa Fe College, FL; **Latoya Chandler**, Interim Director, Andrews Center, Santa Fe College, FL

The GRRATE project developed an interdisciplinary science course, *Wide World of Science*, with learning projects focused on guitar building, model rocketry, and robotics. This was expanded to include a summer program to impact secondary students' attitudes towards technician careers and college preparation. The design of the Summer Institutes model will be discussed as well as strategies to offset barriers that often impedes rural students' ability to progress towards technician careers.

Table 11. Keeping the Pace: Advancing Manufacturing Education

Mori Toosi, Director, Engineering Technology, Polk State College, OH

Keeping technical programs up to date with changing industries and new technologies is key for programs that want to stay connected to their industry partners and help students prepare for employment. This roundtable will discuss validating new and emerging technical skills, getting faculty upskilled quickly, acquiring any needed equipment, and integrating new skills sets into courses and programs.

Table 12. Innovative In-House Biotech Internship Structure to Train and Recruit

Aron Kamajaya, Director, ASPIRE Biotech Training Program, Los Angeles Pierce College, CA

In partnership with the DNA Learning Center, Los Angeles Pierce College developed a Biotech training program and an in-house student internship focused on protein biomanufacturing. Since its implementation in 2021, ASPIRE has trained more than 50 students and developed products/protocols that have been shared through the InnovATEBIO network. Learn about this unique internship structure that includes near-peer mentoring opportunities and aids in student recruitment.

Table 13. Accessible from the Start: 10 Tips for Creating a More Inclusive Syllabus

Luis F. Pérez, Disability & Digital Inclusion Lead, CAST, MA

Creating an accessible syllabus is important because it is often the first means of communication between you and your students. Modeling accessibility and inclusive language in the syllabus ensures that all students, including students with disabilities and multilingual learners, have equal access to course information and feel welcome. Join us as we outline 10 tips for improving the accessibility of your syllabus by including principles of Universal Design for Learning (UDL) in its design and delivery.

Table 14. Institutional Leadership Roles Required for ATE Grant Success

Elizabeth Hawthorne, Co-PI, CCPI-STEM, Prince George's Community College, MD

This roundtable will explore the importance of the various community college administrative and leadership roles in the pursuit of ATE grant funding. The working relationship, communication, and commitment from all institutional levels is an essential element for ATE grant success. Participants will learn important strategies for building internal and external partnerships, another key ingredient for ATE proposal development and implementation success.

Table 15. Faculty Externships for Professional Development and Training

David Ely, Associate Professor of Engineering, Ivy Tech Community College, IN; **Ben Thomas**, Communication Faculty, Ivy Tech Community College, IN

This roundtable will discuss faculty externships, their purpose, benefits, and how to secure and use them effectively for faculty professional development. It will also cover how to incorporate externship insights into the classroom and provide a case study. The benefits of externships to both faculty and their students will be discussed; and attendees will have the opportunity to brainstorm best practices around externships.

PLENARY SPEAKERS

OCTOBER 25 – OPENING PLENARY SESSION

Kian Gohar is a futurist, leadership coach and bestselling author. He inspires organizations to build exponential teams to thrive in the new world of work. He is Founder/CEO of Geolab, an innovation research and leadership development firm.

In 2022, he co-wrote the *Wall Street Journal* bestselling book "*Competing in the New World of Work*" with Keith Ferrazzi, which was published by Harvard Business Review.

A former executive director of the XPRIZE Foundation and Singularity University, Kian has coached the leadership teams of dozens of *Fortune* 500 companies on innovation, leadership, and the future of work.

He is regularly featured in global media and is a sought-after keynote speaker for marquee events globally like the World Economic Forum and South By Southwest. He is a graduate of the Harvard Business School.

OCTOBER 27 – FRIDAY PLENARY SESSION

A pioneer in the world of augmented reality, **Dr. Helen Papagiannis** is a globally recognized authority on immersive technologies and spatial computing. She has dedicated nearly two decades of her life towards this ever-evolving technology, exploring its potential to expand human intelligence and amplify human possibility. With great gusto, Papagiannis offers a fascinating and cutting-edge look at our virtual future and how today's business leaders can prepare for the many "realities" ahead.

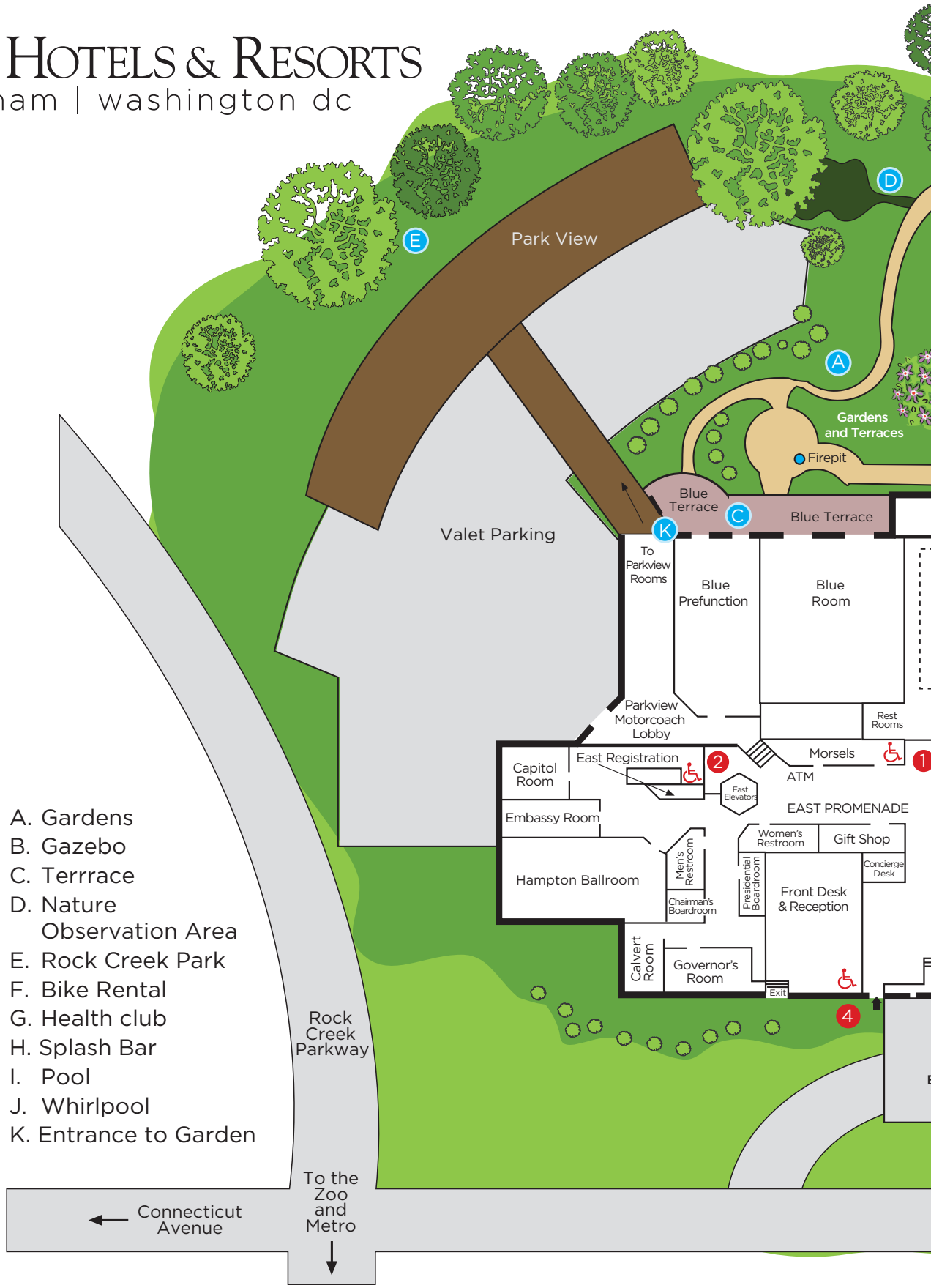
The bestselling author of *Augmented Human: How Technology is Shaping the New Reality*, Papagiannis is the founder of XR GOES POP, a consulting firm focused on AR, XR, and immersive technologies across retail and popular culture. She is also a member of The World Economic Forum's invite-only Global Future Council on Augmented and Virtual Reality, and a Metaverse Initiative Partner.

Prior to this, Papagiannis was the Chief Innovation Officer at Infinity Augmented Reality Inc. (acquired by Alibaba) and a senior research associate at York University's Augmented Reality Lab. She also worked for the internationally acclaimed Bruce Mau Design studio, where she was the project lead on "Massive Change: The Future of Global Design." This 20,000 square foot touring exhibition and bestselling book examined the inventions and technologies reshaping our world.

With clients such as Louis Vuitton and Adobe, and features in *The New York Times, WIRED*, and *Harvard Business Review*, Papagiannis has presented at such renowned events as TEDx, SXSW, ISMAR (International Society for Mixed and Augmented Reality), AWE (Augmented World Expo), and ISEA (International Symposium for Electronic Art). Her TEDx talk was named one of the top 10 on augmented reality and gamified life.

HOTEL MAP

OMNI HOTELS & RESORTS
shoreham | washington dc



A. Gardens
B. Gazebo
C. Terrrace
D. Nature Observation Area
E. Rock Creek Park
F. Bike Rental
G. Health club
H. Splash Bar
I. Pool
J. Whirlpool
K. Entrance to Garden


Lobby Level
Lower Level (2B)
ADA Elevator
1. To Robert's Restaurant and Palladian Room
2. To Blue Room and Parkview Building
3. Lift to Ambassador and Regency Ballroom Level 1B
4. Ramp to Lobby
28th Street
Gardens
Empire Room
Health Club
Firepit
Empire Terrace
Veranda
Robert's Private Room
Robert's Restaurant
Palladian Ballroom
Diplomat Ballroom
Pool
Entrance Health Club
Bird Cage Walk
Women's Restroom (Lower Level)
Hertz Rental
Executive Room
Directors Room
Committee Room
WEST PROMENADE
West Elevators
Coat Check
ATM
Jewelry Store
Men's Restroom
UPS Store & Business Center
West Registration
Women's Restroom
Council Room
Senate Room
Internet Cafe
Shoe Shine Stand
Congressional Room
Forum Room
MAIN LOBBY
Cabinet Room
Marquee Lounge
Exit
Ambassador Ballroom
Regency Gallery
Regency Ballroom
MAIN ENTRANCE
Calvert Street

2023 ATE STUDENT/ ALUMNI PARTICIPATION

AACC AND NSF WISH TO CONGRATULATE THE FOLLOWING ATE STUDENTS AND RECENT ALUMNI SELECTED TO ATTEND THE 2023 ATE CONFERENCE.

Khari Barnes
Kennedy King College, IL

John Brandt
North Iowa Area Community College, IA

Oliver Brown
Kennedy King College, IL

Owen Carlson
University of Florida, FL

Maria Castillo
Robeson Community College, NC

Jadyn Cooper
Florida Atlantic University, FL

Cora Derewonko,
Southern Connecticut State University, CT

Dalia Diaz Chongo
Massachusetts Bay Community College, MA

Diandra Dietrich-Celotto
Central Connecticut State University, CT

Kevin Ethridge
Community College of Philadelphia, PA

Lacy Farr
Wallace State Community College, AL

Kevindra Ghamandi
New York City College of Technology, NY

Shamil Gudavasov
Tennessee Tech University, TN

William Hanson
Riverland Community College, MN

Maria Hashmi
New York City College of Technology, NY

Payton Hibbs
University of Arkansas at Cossatot, AR

Skylre Hine
Gateway Community College, CT

Hannah Honey
University of Arkansas at Cossatot, AR

Helen Kim
Los Angeles Pierce College, CA

Tamara Dale King
Robeson Community College, NC

Cody Klobucnik
North Central Technical College, WI

Stephanie Koester
Queensborough Community College, NY

Christopher Kromke
College of Central Florida, FL

Lex Lewison
Riverland Community College, MN

Connor Locklear
Robeson Community College, NC

Alcides Lopes Cabral
Housatonic Community College, CT

James Lucas
Robeson Community College, NC

Ania Major
Hillsborough Community College, FL

Thomas Matijas
Rochester Institute of Technology, NY

Cleopatra Maxwell
Columbus State Community College, OH

Vivekanand Naikwadi
Tennessee Tech University, TN

Endrit Ngjelina
University of South Florida, FL

Mary Ngo
Palm Beach State College, FL

Isaac Opoku-Agyemang
Columbus State Community College, OH

Rachael Orkin
Los Angeles Pierce College, CA

Haley Piercy
Central Virginia Community College, VA

William Hebert Prahl
St. Cloud State University, MN

Jane Richelmann
Columbus State Community College, OH

Pablo Alexander Romero
Pasadena City College, CA

Sidhanth Sethi
Florida Atlantic University, FL

Nicholas Sheltra
Northwestern Connecticut Community College, CT

Maria Silva
Florida Atlantic University, FL

Monica Tran
Hillsborough Community College, FL

Megan Tucker
Wallace State Community College, AL

Ryan Vance
University of Arkansas at Cossatot, AR

Snehal Vibhute
Columbus State Community College, OH

Ashley Ware
University of Tennessee at Chattanooga, TN

Jack Weber
North Central Technical College, WI

ATE STUDENT AND ALUMNI POSTER SESSION

WEDNESDAY, OCTOBER 25 | 7:15 – 8:45 P.M. | BLUE PRE/BLUE ROOM

Poster #	Student Alpha by Last Name
14	**Khari Barnes** Kennedy King College, IL
20	**John Brandt** North Iowa Area Community College, IA
14	**Oliver Brown** Kennedy King College, IL
10	**Owen Carlson** University of Florida, FL
25	**Maria Castillo** Robeson Community College, NC
10	**Jadyn Cooper** Florida Atlantic University, FL
29	**Cora Derewonko** Southern Connecticut State University, CT
17	**Dalia Diaz Chongo** Massachusetts Bay Community College, MA
01	**Diandra Dietrich-Celotto** Central Connecticut State University, CT
08	**Kevin Ethridge** Community College of Philadelphia, PA
36	**Lacy Farr** Wallace State Community College, AL
18	**Kevindra Ghamandi** New York City College of Technology, NY
31	**Shamil Gudavasov** Tennessee Tech University, TN
24	**William Hanson** Riverland Community College, MN
18	**Maria Hashmi** New York City College of Technology, NY
32	**Payton Hibbs** University of Arkansas at Cossatot, AR

Poster #	Student Alpha by Last Name
01	**Skylre Hine** Gateway Community College, CT
33	**Hannah Honey** University of Arkansas at Cossatot, AR
15	**Helen Kim** Los Angeles Pierce College, CA
25	**Tamara Dale King** Robeson Community College, NC
19	**Cody Klobucnik** North Central Technical College, WI
23	**Stephanie Koester** Queensborough Community College, NY
03	**Christopher Kromke** College of Central Florida, FL
24	**Lex Lewison** Riverland Community College, MN
26	**Connor Locklear** Robeson Community College, NC
13	**Alcides Lopes Cabral** Housatonic Community College, CT
26	**James Peyton Lucas** Robeson Community College, NC
12	**Ania Major** Hillsborough Community College, FL
27	**Thomas Matijas** Rochester Institute of Technology, NY
04	**Cleopatra Maxwell** Columbus State Community College, OH
31	**Vivekanand Naikwadi** Tennessee Tech University, TN
28	**Endrit Ngjelina** Saint Petersburg College, FL
21	**Mary Ngo** Palm Beach State College, FL

Poster #	Student Alpha by Last Name
05	**Isaac Opoku-Agyemang** Columbus State Community College, OH
16	**Rachael Orkin** Los Angeles Pierce College, CA
02	**Haley Piercy** Central Virginia Community College, VA
30	**William Hebert Prahl** St. Cloud Techincal Community College, MN
06	**Jane Richelmann** Columbus State Community College, OH
22	**Pablo Alexander Romero** Pasadena City College, CA
11	**Sidhanth Sethi** Florida Atlantic University, FL
09	**Nicholas Sheltra** Northwestern Connecticut Community College, CT
11	**Maria Silva** Florida Atlantic University, FL
12	**Monica Tran** Hillsborough Community College, FL
35	**Megan Tucker** Wallace State Community College, AL
32	**Ryan Vance** University of Arkansas at Cossatot, AR
07	**Snehal Vibhute** Columbus State Community College, OH
34	**Ashley Ware** University of Tennessee at Chattanooga, TN
19	**Jack Weber** North Central Technical College, WI

ATE STUDENT AND ALUMNI POSTER SESSION – ABSTRACTS

WEDNESDAY, OCTOBER 25 | 7:45 – 8:45 P.M. | BLUE PRE/BLUE ROOM

Poster #01
Central Connecticut State University and Gateway Community College, CT
Diandra Dietrich-Celotto, Skylre Hine

This poster highlights the development and creation of a self-sustaining, hydro powered buoy. Through research and resourcing, this team created a working prototype to monitor and gather data on sea farms.

Poster #02
Central Virginia Community College, VA
Haley Piercy

This poster provides an overview of the student's education received through the Regional Governor's XLR8 STEM Academy. The student, a senior in high school, studies engineering through this hands-on program at Central Virginia Community College. The specialized program provides an OSHA10 certification, a semester long internship in college level classes, and more.

Poster #03
College of Central Florida, FL
Christopher Kromke

This poster highlights the student's career path going from a technical school, to becoming an electrician at Withlacoochee Technical College, to the College of Central Florida for a Bachelor of Science degree in engineering technology, then finally a master's degree at the University of Central Florida in aerospace technology.

Poster #04
Columbus State Community College, OH
Cleopatra Maxwell

This poster will provide an overview look into how students are preparing to go into the welding industry; what technology and equipment is being used for welding; and how a Choose Ohio First (COF) scholarship has contributed to getting the education and resources needed to help with preparations to become a welder.

Poster #05
Columbus State Community College, OH
Isaac Opoku-Agyemang

A student's journey toward a cybersecurity career is detailed in this poster–including varied career experiences ranging from the IT field to work in accessibility and vulnerability management for one of the largest electricity grids in the world.

Poster #06
Columbus State Community College, OH
Jane Richelmann

This poster will provide an overview of the welding program at Columbus State Community College, the facilities used to train students, and an internship program held in conjunction with The Ohio State University. The student presenter will also discuss how the program benefits the economy of Central Ohio.

Poster #07
Columbus State Community College, OH
Snehal Vibhute

This poster offers an overview of a remarkable journey into the software development field, starting from a non-IT background and culminating in the achievement of an apprenticeship at Honda. It explores the wealth of resources employed to construct a solid knowledge foundation, showcasing the student's determination and their ultimate breakthrough in the industry.

Poster #08
Community College of Philadelphia, PA
Kevin Ethridge

What is in Philadelphia's waterways? Come to see and learn about how Philadelphia's residents are affecting a number of aquatic ecosystems, as well as the setup and maintenance of a brand new research lab at the Community College of Philadelphia.

Poster #09
Northwestern Connecticut Community College, CT
Nicholas Sheltra

This poster shares the information of a project that was done during a molecular genetics course. The project was gene annotation of bacteria phase for analysis and annotation.

Poster #10
Florida Atlantic University and University of Florida, FL
Owen Carlson, Jadyn Cooper

Lithium battery recycling is a crucial endeavor in the sustainable energy landscape. This process involves recovering valuable materials like lithium, cobalt, and nickel from used batteries while mitigating environmental impacts. With the growth of electric vehicles and renewable energy, efficient recycling methods are essential for conserving resources and reducing electronic waste.

Poster #11
Florida Atlantic University, FL
Sidhanth Sethi, Maria Silva

There is an increased demand for electric vehicles; but the curriculum and training haven't been developed to create a vital workforce pipeline. Working with the National Electric Vehicle Consortium (NEVC), this student poster shares information on proposed educational opportunities for equipping the entry-level workforce–including short-term, accessible, and translational knowledge for people interested in the electrified automotive revolution.

Poster #12
Hillsborough Community College, FL
Ania Major, Monica Tran

Join students from the Demystifying Cloud Computing project at Hillsborough Community College to learn how Cloud computing has revolutionized the corporate landscape, reshaping how businesses operate and deliver services. Understanding the various business models in the cloud ecosystem is critical for making informed decisions and achieving effective adoption.

Poster #13
Housatonic Community College, CT
Alcides Lopes Cabral

This poster will share a student's experience in the manufacturing program at Housatonic Community College.

Poster #14
Kennedy King College, IL
Khari Barnes, Oliver Brown

This poster shares information on a project involving the production of a crude Taq Polymerase using pSimple Taq grown in JM 109 cells. Students use the function assay and validation protocol developed by BABEC using DNA PCR amplification and gel electrophoresis analysis.

Poster #15
Los Angeles Pierce College, CA
Helen Kim

Lyophilization is a common preservation method for biological products. This student poster shares research focused on the biomanufacturing of various protein targets, including Taq polymerase. From the initial screen, students identified suitable formulations for Taq polymerase. The subsequent stability study reveals that the lyophilized crude Taq extract retains its function after incubation at 50°C for 8 weeks.

Poster #16
Los Angeles Pierce College, CA
Rachael Orkin

Autofluorescence (AF) imaging is an upcoming point-of-care method that can visualize the bioburden of chronic wounds through 405 nm violet light. This is exceptionally helpful for debridement, as clinicians can now see the bacteria to actively remove. The current form factors for AF-guided debridement are explored.

Poster #17
Massachusetts Bay Community College, MA
Dalia Diaz Chongo

This poster highlights a student's deep engagement with the realm of technology that occured during a computer networks course. This experience marked a significant introduction to the technology industry, ultimately affording an opportunity for this student to actively contribute to the development of the MassBay Cyber Range.

Poster #18
New York City College of Technology, NY
Kevindra Ghamandi, Maria Hashmi

These student presenters are researching and developing a geopolymer using lunar dust to 3D print houses on the moon. They are studying the composition of both lunar mares and lunar highlands in order to fully understand what needs to be added to make strong durable geopolymers that can withstand the varying factors and temperaments of the moon.

Poster #19
North Central Technical College, WI
Cody Klobucnik, Jack Weber

This poster will provide an overview of the vast and expanding world of machine tooling, and the many different paths someone can take in this area of study.

Poster #20
North Iowa Area Community College, IA
John Brandt

This poster details a student's experiences in automation and robotics, the multiple projects he got to conduct in the field, and the implementation of what he learned. It also shows his current path in school, and his future education and career plans.

Poster #21
Palm Beach State College, FL
Mary Ngo

There are two types of people in this world: One: those who can extrapolate from incomplete data. Two:..." This poster provides information about the process and learning of data acquisition using a laboratory information management system (LIMS) machine with a standard 3D printer.

Poster #22
Pasadena City College, CA
Pablo Alexander Romero

This poster provides an overview of a six-month mentee/mentor internship at Caltech through the Caltech Connections program, which is an outreach program that pairs graduate students and postdoctoral scholars from Caltech as mentors with undergraduates from local community colleges. The topic of research is Lithium-Ion batteries and Fluoride-Ion batteries.

Poster #23
Queensborough Community College, NY
Stephanie Koester

In this project, students collected, stored, queried, and analyzed unstructured datasets from Twitter using Python and cloud technologies. User tweets and mentions about U.S. senators were pulled from Twitter, stored in Amazon Web Services, and queried. A sentiment analysis library was used to measure the polarity and subjectivity of the tweets.

Poster #24
Riverland Community College, MN
William Hanson, Lex Lewison

This poster will share information on the curriculum taught in the Riverland Automotive program—covering everything from what career fields are available to studying electronics, brakes, etc.—with a focus on hands-on learning opportunities.

Poster #25
Robeson Community College, NC
Maria Castillo, Tamara Dale King

This poster provides an overview of the dangers of navigating the web, as well as information on preventing cyber attacks. It also includes a list of devices that can have sensitive information. By raising awareness about these risks and following best practices for cybersecurity, users can better protect themselves and their sensitive data.

Poster #26
Robeson Community College, NC
Connor Locklear, James Peyton Lucas

This poster will present an outline of a student's entry into a stable cybersecurity job and the numerous resources needed to lay a solid foundation. The experience ranges from having no IT knowledge to working in offensive security and vulnerability management for one of the world's largest electrical power grids.

Poster #27
Rochester Institute of Technology, NY
Thomas Matijas

ManufactuRIT is a summer camp where three main learning frameworks, 21st century learning, octalysis, and PCRN employability skills were injected into a manufacturing camp curriculum. This camp introduces a diverse group of middle school students to manufacturing processes and problem solving skills—and enriches their minds toward possible post high school education and employment opportunities.

Poster #28
Saint Petersburg College, FL
Endrit Ngjelina

This poster provides a comprehensive review of intelligent cameras, a rapidly evolving field at the intersection of computer vision, artificial intelligence, and sensor technology. Intelligent cameras have revolutionized numerous industries, including surveillance, autonomous vehicles, robotics, and healthcare, by endowing cameras with the ability to interpret and respond to visual data in real time.

Poster #29
Southern Connecticut State University, CT
Cora Derewonko

This poster will share details on how Ocean Green's prototype project, Magen Bob the first, is a sustainable way to create renewable energy. This poster will also provide reasoning for why sea kelp farms in Connecticut would benefit from this prototype and its purpose.

Poster #30
St. Cloud Techincal Community College, MN
William Hebert Prahl

This poster details the student's time working with a capstone team developing a secure login function for a virtual reality (VR) educational environment.

Poster #31
Tennessee Tech University, TN
Shamil Gudavasov, Vivekanand Naikwadi

The use of virtual reality (VR) in higher education and industry is continuously growing. A high number of tools have been developed to answer the needs of academia and industry. However, they are mostly expensive. This poster will provide informaiton on the low-cost VR system developed by Somerset Community College for design and manufacturing workforce training needs.

Poster #32
University of Arkansas at Cossatot, AR
Payton Hibbs, Ryan Vance

Mapping soil qualities can provide precise data to farmers and ranchers, allowing for efficient and effective management decisions. Soil science students at UA Cossatot are partnering with a rotational grazing beef operation to pilot an application that will allow data to be recorded and shared on an interactive online map.

Poster #33
University of Arkansas at Cossatot, AR
Hannah Honey

Thermal drones have revolutionized agriculture. They effortlessly detect heat signatures, providing accurate and cost-efficient temperature readings for animals and vegetation. These devices provide precision to navigate challenging environments and collect accurate data in real time. This project will explore the potential advantages, applications, and future prospects of thermal imaging in agriculture.

Poster #34
University of Tennessee at Chattanooga, TN
Ashley Ware

This poster is titled: "Automated Approach for Customized Lipid Bilayer Formation Using Collaborative Robots." Recent technological advances have allowed for the development of low-cost intelligent articulated robotic manipulators. In this work, the high positioning repeatability and accuracy of a low-cost collaborative robot will be used to automate the process of lipid bilayer formation with different compositions.

Poster #35
Wallace State Community College, AL
Megan Tucker

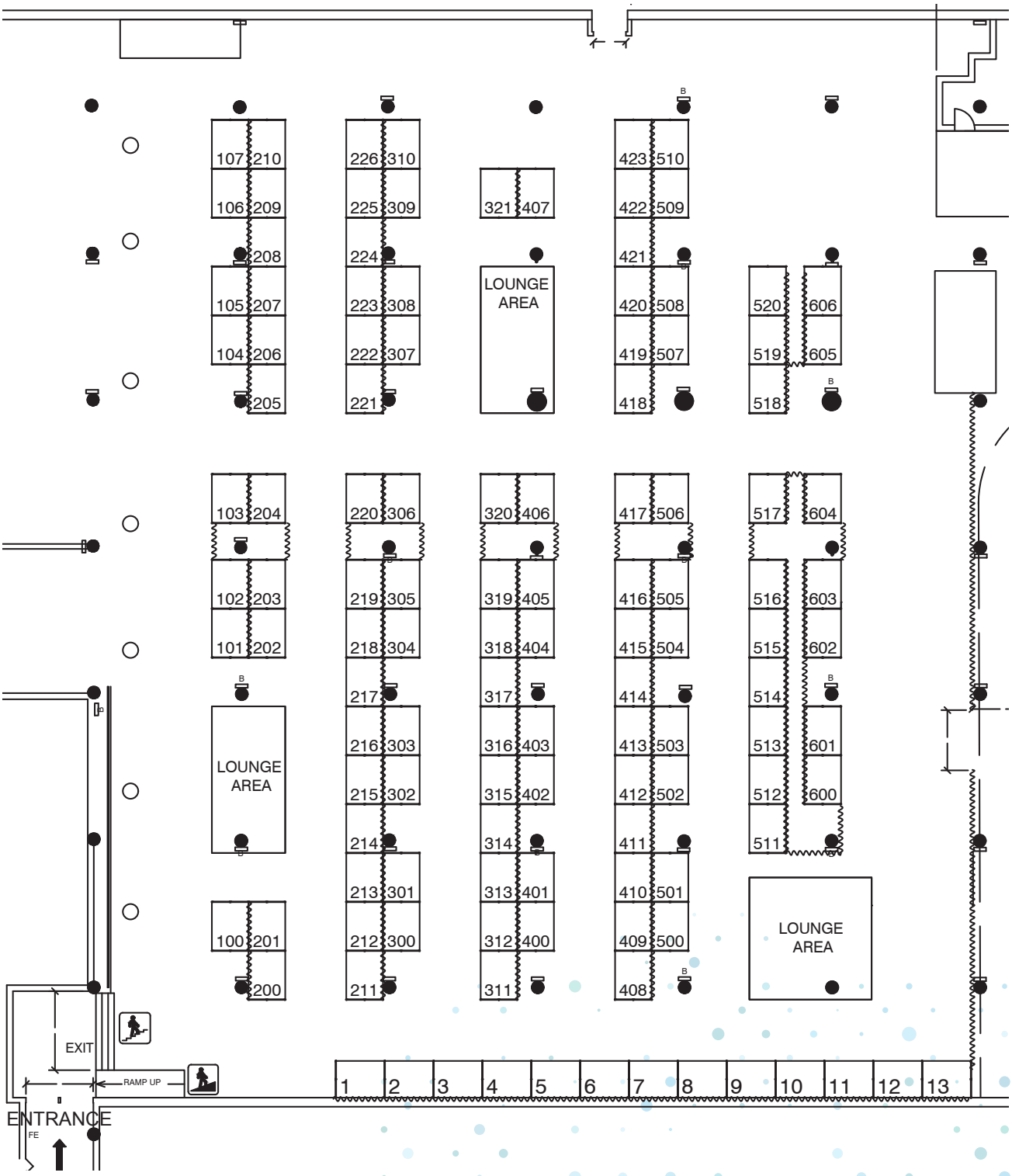
This poster provides an example of what "community" should be like within a state community college, and an outside work experience such as an apprenticeship at Fitzgerald Peterbilt, in Birmingham, Alabama. The student will also share educational experiences that have been provided over many months.

Poster #36
Wallace State Community College, AL
Lacy Farr

This poster focuses on a female, adult learners' perspective of what it is like to return to college and attend a male-dominated field. The poster will provide insight into the mental, physical, and emotional challenges she faces daily. She will eventually become a role model for future students sharing the same struggles. YES I CAN.

ATE CONNECTS – SESSION I

ATE CONNECTS – CONVERSATION HUB MAP
THURSDAY, OCTOBER 26, 2023
EXHIBIT HALL



ATE CONNECTS SESSION I

THURSDAY, OCTOBER 26 | 10:30 A.M. – 12:15 P.M. | EXHIBIT HALL

AGRICULTURAL AND ENVIRONMENTAL TECHNOLOGIES, BIOLOGICAL AND CHEMICAL TECHNOLOGIES, GENERAL ADVANCED TECHNOLOGICAL EDUCATION, INFORMATION AND SECURITY TECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Amarillo College, TX	Career Accelerator Cybersecurity Program	411
Atlanta Technical College, GA	Atlanta Technical College Bioscience Emerging Technicians Project	216
Austin Community College, TX	Dual Credit High School-Community College DNA Sequencing and Genomics Project	226
Austin Community College, TX	Increasing Student Retention and Recruitment through Alumni Programs, Speed Networking, and Industry Engagement	218
Austin Community College, TX	InnovATEBIO National Biotechnology Education Center	300
Bay Area Bioscience Education Community (BABEC), CA	Strategies for Recruiting High School Students to your Biotechnology Program	314
Bellevue College, WA	Working Partners Project & Workshops	006
Bioindustrial Manufacturing and Design Ecosystem, CA	Advancing Progress in Industrial BioManufacturing to Accelerate Workforce Readiness	215
Bridgerland Technical College, UT	Distance-Enabled Industry-Led Data Analytics Technician Pathway (ILDAP)	419
Broward College, FL	CyberTech: Expanding Opportunities in Cybersecurity	415
Cape Fear Community College, NC	Increasing Student Enrollment, Education, and Employment in Chemical Technology	309
CAST, Inc., MA	Biofab Explorer: Designing A Dual Enrollment Pathway to Careers in Biofabrication	212
Central Carolina Community College, NC	EARTh Center: Amplifying ATE Projects with Enhanced Services & Opportunities	200
Central Lakes College, MN	Technical Applications in Agriculture	104
Central Wyoming College, WY	Geospatial Technical Education: Bridging Classroom to GIS Technician Careers	505
Cerritos College, CA	Improving Biotechnology Outcomes through Pre-Professional Experiences and Industry Partnerships	306
Chabot-Las Positas Community College Districut, CA	Building Biobadges Into a Traditional Biology Program to Fulfill Workforce Needs and Support Program Equity	221
Chesapeake College, MD	Preparing Career Ready Information Technology Technicians	517
City College of San Francisco, CA	A Collaborative Approach to Work-Based Learning in Biotechnology: Building Inclusive Lab Environments	214
City Colleges of Chicago, IL	KKC Biotech: Developing a Biotechnology Degree Program to Train Skilled Biotechnicians in Chicago	312
Clemson University, SC	Addressing Student Skills Gaps in Water Treatment Operator Education Utilizing Virtual Reality Enabled Curriculum Resources	202

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AGRICULTURAL AND ENVIRONMENTAL TECHNOLOGIES, BIOLOGICAL AND CHEMICAL TECHNOLOGIES, GENERAL ADVANCED TECHNOLOGICAL EDUCATION, INFORMATION AND SECURITY TECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
College of Southern Nevada, NV	Increasing the Cloud System Administration Services Workforce through Skills-Based Education and Training	512
College of the Mainland, TX	Robotic Process Automation Career Training	600
Collin County Community College, TX	Information Technology Skill Standards, 2020 and Beyond	404
Collin County Community College, TX	National Convergence Technology Center	403
Columbus State Community College, OH	Information Technology Career Pathways through a Flexible Apprenticeship Model	511
Columbus State Community College, OH	National Information Technology Innovation Center (NITIC)	400
Community College of Philadelphia, PA	Expanding Pathways and Support for Transportation Technology Education and Careers at an Urban Minority Serving Institution	321
Compton College, CA	Creating Equitable Pathways to Careers in Biotechnology	223
Contra Costa Community College District, CA	Increasing Diversity in the Cybersecurity Talent Pool through Cyber Camps and Competitions	508
Center for Occupation Research and Development (CORD), TX	Building Pathways to Innovation in Skilled Technical Workforce Education through Strategic Employer Engagement	012
Center for Occupation Research and Development (CORD), TX	Preparing Technicians for the Future of Work	008
Center for Occupation Research and Development (CORD), TX	The Necessary Skills Now Network: Integrating Employability Skills Development into Technician Education Across STEM Disciplines	009
County College of Morris, NJ	Expanding Pathways to a Data Science Career by Developing a Certification in Data Science and Analytics	500
CUNY Borough of Manhattan Community College, NY	Developing an Online Cybersecurity Certificate with Stackable Credentials	417
CUNY Borough of Manhattan Community College, NY	Navigating Students to In-Demand Tech Careers in Secure Mobile Programming in the NYC Region	513
CUNY Hostos Community College, NY	The Hostos Technical Education in Cybersecurity (H-TEC)	601
CUNY Queensborough Community College, NY	Using Cloud Technologies to Develop the Data Analysis Skills of Community College Students	602
Delaware Technical & Community College Stanton-Newark Campus, DE	Technician Training in CRISPR-Based Gene Editing	316
Digital World Biology, WA	A Bridge to Bio-Link's Future	213

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ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Digital World Biology, WA	Developing Classroom-Based Undergraduate Research Experiences (CUREs) in Antibody Bioengineering	224
Durham Technical Community College, NC	Power of Us: Increasing Female Enrollment and Retention in Career and Technical Education Programs	320
Education Connection, CT	Building Career Interest in Computer Science through Advanced Real-World Technology Projects	410
Education Connection, CT	Mentor Up: Supporting Preparation of Competitive Proposals to Improve Education of the Skilled Technical Workforce	011
Florence-Darlington Technical College, SC	Mentor-Connect Forward: Leadership Development and Outreach for ATE	005
Florida State University, FL	Collaborative Research: Identifying and Investigating Pathways and Critical Junctures in Two-Year Information Technology Programs	412
Forsyth Technical Community College, NC	Engaging K-12 Teachers to Help Build a Cybersecurity Workforce Pipeline	421
Forsyth Technical Community College, NC	Skills for Biomedical Emerging Technology Applications	315
Forsyth Technical Community College, NC	Using High-Resolution Mass Spectrometry to Develop Advanced Laboratory Skills in Collaboration with Industry	318
Frederick Community College, MD	Building the Cell Therapy and Flow Cytometry Workforce	222
Georgia Bio, GA	Implementation of an Industry-Recognized Credentialing System for Biotechnicians	304
Harford Community College, MD	BIOTECH Pathways: Expanding Pathways from High School into the Biotechnology Workforce	219
Hillsborough Community College, FL	An Initiative of Closing the Cloud Computing Skills Gap	405
Indian River State College, FL	Project Vision: Broadening Institutional Participation in the NSF Advanced Technological Education Program	007
Institute for Future Intelligence, Inc., MA	Collaborative Research: A Solar and Wind Innovation and Technology Collaborative for Hawaii (SWITCH)	208
Johnston Community College, NC	Expanding a Multi-Skilled STEM Technician Pipeline to Meet Industry Needs, "Bio Blend 2.0"	217
Johnston Community College, NC	Integrating Biotechnology and Applied Engineering to Meet Emerging Advanced Technological Workforce Needs	311
Kentucky Community & Technical College System, KY	Appalachian Solutions in Cybersecurity Innovation Initiative: Cybersecurity Technician Pipeline Development in Rural, Eastern Kentucky	406
Kentucky Community & Technical College System, KY	GeoTech Geospatial Resource Center	504

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AGRICULTURAL AND ENVIRONMENTAL TECHNOLOGIES, BIOLOGICAL AND CHEMICAL TECHNOLOGIES, GENERAL ADVANCED TECHNOLOGICAL EDUCATION, INFORMATION AND SECURITY TECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Lakeshore Technical College, WI	Developing Cybersecurity Technicians through Expanded Pathways in Rural and Underserved Communities	418
Lakeshore Technical College, WI	Expanding Advanced Renewable Energy Technician Education in a Technical College	207
Los Angeles Harbor College, CA	Building A Data Driven Pathway in Data Science Leading to Student Success	409
Los Angeles Mission College, CA	Expanding the Biotechnology Pipeline to Adults Seeking Reemployment	301
Los Angeles Pierce College, CA	Training the Skilled Biomanufacturing Workforce through Innovative Internships in Protein Biomanufacturing	317
Madison Area Technical College, WI	CREATE Energy National Center	205
Madison Area Technical College, WI	Creating an Industry Recognized Energy Storage Certification Credential	206
Massachusetts Bay Community College, MA	Attracting the Next Generation Cybersecurity Workforce (ACT)	408
Miami Dade College, FL	Emerging Cloud Hub Opportunities (ECHO)	420
Miami Dade College, FL	Increasing the Inclusion of Women in the Information Technology and Cybersecurity Skilled Technical Workforce	510
Mississippi Gulf Coast Community College, MS	Connecting the Coast to the Cloud	413
Missouri State University, MO	VESTA Resource Center	100
Monroe Community College, NY	Meeting Workforce Needs for Skilled Geospatial Technicians through Virtual Geospatial Information Science Technology Education	506
Montgomery College, MD	Improving Biopharmaceutical Technician Education with Cell and Gene Therapy Credentials	305
Montgomery County Community College, PA	Building an Advanced Therapy Technician Workforce in Southeastern PA	220
National Science Foundation, VA		001
North Arkansas College, AR	Engaging Rural Students in Advancement Opportunities through the Field of Data Analytics	422
North Arkansas College, AR	Expanding Remote Delivery of Information Technologies Education in a Rural Environment	501
North Georgia Technical College, GA	Modernizing Agriculture Technician Education in Appalachian Northeast Georgia	106
Northeast Community College, NE	Advancing Precision Agriculture in the Urban Environment	101
Northeast Wisconsin Technical College, WI	Smart Start to Skilled Technical Careers in Energy Management Technology	210

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ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Northeast Wisconsin Technical College, WI	Advanced Technological Education Network for Utilities and Energy Technical Education	209
Northern Virginia Community College, VA	NOVA Biotechnology Leadership in Education (NOBLE) Project	313
Parkland College, IL	Expanding Precision Agriculture Education and Certification to Secondary Students	103
Pellet Productions, Inc., MA	Technician Navigator	319
Phillips Community College of the University of Arkansas, AR	Arkansas Delta Information Systems and Cyber Technician Education Initiative	407
Pittsburgh Technical College, PA	Preparing High School and Community College Students for the Cybersecurity Workforce	519
Portland Community College, OR	Journal of Advanced Technological Education (J ATE)	004
Prince George's Community College, MD	Community College Presidents Initiative – STEM (CCPI STEM)	010
Prince George's Community College, MD	Fortifying Cybersecurity and Computing Education through ATE Grants (FORCCE-ATE)	503
Prince George's Community College, MD	National CyberWatch Resource Center (NCRC)	402
Rancho Santiago Community College District, CA	Preparing Students for Cybersecurity Professions Using Real-World Experiences	520
Riverside Community College District, CA	Preparing Cybersecurity Technicians with the Technical and Entrepreneurial Skills Required to Work as Independent Contractors	518
Robeson Community College, NC	Increasing the Number and Diversity of Cybersecurity Technicians in Rural North Carolina	509
Rochester Institute of Technology, NY	Deaf TEC Center	516
Rochester Institute of Technology, NY	Pilot Program to Prepare Adults who are Deaf or Hard-of-Hearing for Skilled Technical Positions in Information Technology	515
San Mateo County Community College District, CA	BioSCOPE: A Work-Based Learning Student Success Story	310
Santa Monica College, CA	Expanding the Cell Science and Immunological Testing Workforce by Developing a Diverse and Inclusive Credentialed Biotechnology Program	302
Shoreline Community College, WA	Establishing a Hub to Support Education of Biomanufacturing Technicians in Cell Therapy and Immunotherapy	604
Sinclair Community College, OH	Enhancing Career Pathways to Green Jobs in High-Performance Building Technology	211
Sinclair Community College, OH	Expanding the Data Analytics Technician Pipeline from High School into College and High Demand Jobs in Southwest Ohio	502

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ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Sinclair Community College, OH	Preparing the Agricultural Workforce in Southwest Ohio	107
Snow College, UT	Educating Technicians to Use Precision Technology for Innovative Livestock Management	102
Southeast Community College, NE	Incorporating a Course-Based Research Experience in High School and Community College Courses in Southeast Nebraska	308
Southern West Virginia Community College, WV	A Collaborative Cybersecurity Analysis Certification Program	603
Southside Virginia Community College, VA	Path to Information Technology (IT) Practice: Increasing Credential Completions in IT within the Southern Tier of Virginia	514
Spartanburg Community College, SC	Developing an Industry-led Data Analytics Technician Program for Upstate South Carolina	416
St. Cloud Technical College, MN	Technical Workforce Immersive Teaching and Learning Resources	013
The Wistar Institute, PA	Expansion, Curriculum Evolution, and Enhancement of Biotechnician Training	303
University of Arkansas-Cossatot, AR	GIS-Skilled Technicians in Agriculture-Related Sciences (GSTARS)	105
Ulster County Community College, NY	Improving Industry Based Skills in Environmental Studies at a Community College	204
University of Florida, FL	Improving Access and Success in Information Technology Programs through Education-Industry Connections	507
University of Hawaii, HI	Cyber Data Analytics Education, Curriculum, and Workforce Development	414
University of Hawaii, HI	Geospatial Remote Sensing Hawaii	201
University of Hawaii, HI	Workforce for Water	203
University of Wisconsin-Madison, WI	ATE Central	002
Valencia Community College, FL	Improving the Biotechnology Internship Experience to Better Prepare Student Technicians for the Modern Workforce	307
Wake Forest University School of Medicine, NC	Developing the Skilled Technical Workforce for Regenerative Medicine Biomanufacturing in the Piedmont Triad Region of North Carolina	225
Wake Technical Community College, NC	Enhancing Preparation of Students for Technical Careers in Cloud Computing Technologies	423
Western Michigan University, MI	EvaluATE: Evaluation Hub for Advanced Technological Education	003
Whatcom Community College, WA	National Cybersecurity Training & Education (NCyTE) Center	401

ATE CONNECTS SESSION I – ABSTRACTS

THURSDAY, OCTOBER 26 | 10:30 A.M. – 12:15 P.M. | EXHIBIT HALL

ATE CONVERSATION HUBS

Hub #: 001

National Science Foundation

The National Science Foundation propels the nation forward by advancing fundamental research in all fields of science and engineering. NSF supports research and people by providing facilities, instruments, and funding to support their ingenuity and sustain the U.S. as a global leader in research and innovation. With a fiscal year 2023 budget of $9.5 billion, NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities, and institutions. Each year, NSF receives more than 40,000 competitive proposals and makes about 11,000 new awards. Those awards include support for cooperative research with industry, Arctic and Antarctic research and operations, and U.S. participation in international scientific efforts.

Hub #: 002

ATE Central

Primary Institution: University of Wisconsin-Madison, WI

Discipline: General Advanced Technological Education

Grant Type: ATE Project

ATE Central is a free online portal and collection of materials and services dedicated to highlighting the work of the NSF Advanced Technological Education (ATE) projects and centers. ATE Central helps educators, students, and the general public learn about, and use materials from, the entire depth and breadth of the ATE program. ATE Central helps direct users to a full range of high-impact ATE resources available online, including curricula, learning objects, podcasts, videos, and more. The portal also ensures long term access to ATE deliverables through the project's archiving service.

Hub #: 003

EvaluATE: Evaluation Hub for Advanced Technological Education

Primary Institution: Western Michigan University, MI

Discipline: General Advanced Technological Education

Grant Type: ATE Project

EvaluATE, the evaluation hub for the NSF ATE program, educates the ATE community—including evaluators, project leaders and staff, and grant specialists—about all things evaluation. We offer open-access webinars, checklists, and other resources about evaluation. We foster a community of those interested in learning from ATE evaluations and improving the quality of evaluations in ATE. We also conduct research on ATE evaluations to advance evaluation practice. Finally, EvaluATE publishes the ATE Survey Report, an annual collection of data about the activities and achievements of ATE projects.

Hub #: 004

Journal of Advanced Technological Education (J ATE)

Primary Institution: Portland Community College, OR

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The Journal of Advanced Technological Education (J ATE) is the peer-reviewed journal for ATE projects and centers. J ATE publishes journal articles based on ATE project and center work focused on technician education at community and technical colleges. Learn how the J ATE Connects and J ATE URE programs are skilling up writers to become published authors. Come by the J ATE table for a hard copy of our newest issue and learn how you can become a peer-reviewed author. Disseminate your work and publish your results in J ATE.

Hub #: 005

Mentor-Connect Forward: Leadership Development and Outreach for ATE

Primary Institution: Florence-Darlington Technical College, SC

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Mentor-Connect helps two-year college personnel prepare competitive NSF ATE grant proposals, navigate the NSF funding process, implement funded projects to advance technician education, and develop as STEM faculty leaders in advanced technological education. Mentor-Connect offers mentoring for New to ATE Cohort Mentoring (first proposal for a college or STEM faculty), Second-Chance Mentoring (reworking a declined proposal), Moving-Up Mentoring (second proposal for a college), and Co-Mentoring (proposal development in collaboration with an ATE Center).

Hub #: 006

Working Partners Project & Workshops

Primary Institution: Bellevue College, WA

Secondary Institution: University of Wisconsin-Madison, WI

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Working Partners focuses on strengthening education-industry partnerships by providing educators with support, resources, and a structured approach to partnership planning, initiating, sustaining, and evaluation. Workshops begin with participant analysis and prioritization of partnership-related goals, and culminate in action plans tailored to meet unique project outcomes. Live sessions are collaborative and feature presentations, exercises, and guests. Workshop content is drawn from results of

the Working Partners Research Project (DUE 1501176) and the collective knowledge of the ATE community.

Hub #: 007

Project Vision: Broadening Institutional Participation in the NSF Advanced Technological Education Program

Primary Institution: Indian River State College, FL

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Project Vision is a NSF-funded mentoring initiative to help colleges discover and match innovative ideas with NSF funding opportunities. Launched in 2020, Project Vision's mission is to: (1) provide two-year diverse, small, rural colleges and/or colleges with newer presidents the expertise to generate innovative ideas that produce award-worthy NSF proposals; and (2) provide each college the support needed to build up their capacity to regularly submit proposals to the NSF ATE program and other DUE programs.

Hub #: 008

Preparing Technicians for the Future of Work

Primary Institution: Center for Occupation Research and Development (CORD), TX

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Our project supports community colleges that want to adopt systemic changes toward empowering learners with skill sets that cross industries and sectors. We provide a framework outlining the need for the integration of advanced digital literacy, data analysis, and business processes in technical programs and a step-by-step toolkit for implementing the framework recommendations. Project resources include cross-disciplinary instructional activities, a process for determining regional employer priorities, podcasts, professional development workshops, and technical assistance.

Hub #: 009

The Necessary Skills Now Network: Integrating Employability Skills Development into Technician Education Across STEM Disciplines

Primary Institution: Center for Occupation Research and Development (CORD), TX

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The Necessary Skills Now Network aims to advance community and technical college faculty and their respective industry partners' access to and ability to collaborate around employability skills development in support of technician education across the STEM disciplines. The Network assists colleges in sharing resources, exploring effective teaching methods, and collaborating with local employers to help students improve workplace skills such as teamwork, problem-solving, communication, and dependability.

Hub #: 010

Community College Presidents Initiative–STEM (CCPI STEM)

Primary Institution: Prince George's Community College, MD

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The CCPI project aims to galvanize community college leadership to promulgate and support state and regional STEM education and workforce development. This project has engaged eight regional networks encompassing 70% of the country; hosted five webcasts/year focusing on community college engagement in NSF ATE; sponsored the inaugural Community College Thought Dialogue in STEM; created the CCPI-STEM Fellows program to support research in STEM; and developed curriculum modules focused on NSF ATE. A significant number of community college presidents in collaboration with national organizations are pursuing robust efforts to grow technical workforce programs at community colleges while improving the utilization of the NSF ATE resources.

Hub #: 011

Mentor Up: Supporting Preparation of Competitive Proposals to Improve Education of the Skilled Technical Workforce

Primary Institution: Education Connection, CT

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Mentor Up pairs prospective principal investigators with experienced NSF ATE principal investigators to provide mentoring in developing and submitting an NSF ATE proposal. Annual cohorts consist of teams from community colleges, which include two technician education faculty from the institution. Specific activities include virtual mentoring, webinars, and a 2.5-day virtual workshop where participants learn the strategies and NSF requirements for writing and submitting competitive proposals. Faculty from all **discipline**s applicable to NSF ATE program are considered for participation.

Hub #: 012

Building Pathways to Innovation in Skilled Technical Workforce Education through Strategic Employer Engagement

Primary Institution: Center for Occupation Research and Development (CORD), TX

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The Pathways To Innovation (PTI) project builds on the ATE-supported Business & Industry Leadership Team (BILT) model, a proven method for strategic employer engagement developed by the National Convergence Technology Center. Colleges involved in PTI develop employer relationships that yield workforce intelligence at a depth and with a frequency that facilitates continuous program improvement and innovation. PTI fosters a culture of innovation co-led by employers and college faculty through two technical assistance cohorts: The BILT Academy and Grant-Seeker Academy.

Hub #: 013

Technical Workforce Immersive Teaching and Learning Resources (TWITLR)

Primary Institution: St. Cloud Technical College, MN

Discipline: General Advanced Technological Education

Grant Type: Small New to ATE

TWITLR will improve technician education at two-year colleges by expanding immersive technology (360° photography/videography and augmented, mixed, and virtual reality) use in the classroom. This project flattens the implementation learning curve by developing and deploying faculty resources including online professional development resources for each technology, summer boot camps, community networks, and content development support. Content developed through this project will contribute to a repository of open educational resources for instruction using immersive technologies.

Hub #: 100

VESTA Resource Center

Primary Institution: Missouri State University, MO

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Center

VESTA is a partnership between the Missouri State University system and colleges, universities, vineyards, and wineries across America. These partners share a vision for education in grape growing and wine making. The VESTA Resource Center seeks to be the preferred destination for resources and services that will advance the Grape and Wine Industry (GWI). An alliance of educational institutions, nonprofit organizations, and private industry working together with government to address the deployment of STEM opportunities in the GWI and other high-technology fields across the country.

Hub #: 101

Advancing Precision Agriculture in the Urban Environment

Primary Institution: Northeast Community College, NE

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Northeast Community College faculty are creating an urban agriculture career pathway by developing high school, college, and industry curriculum in horticulture and urban agriculture. The curriculum features hands-on interactive learning workshops for high school agriculture educators to effectively deliver precision agriculture technology lessons in a scaled down format focusing on urban agriculture and residential horticulture settings. Training includes drone operations, weather technology, data analysis, soil/water sensing, agribusiness/marketing, and more.

Hub #: 102

Educating Technicians to Use Precision Technology for Innovative Livestock Management

Primary Institution: Snow College, UT

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Snow College's Innovative Livestock Management (ILM) program is now an established CTE pathway for agriculture focused on moving high school students into college. Students in the ILM program are trained in livestock management and technical skills that are based in cost-saving practices of monitoring and managing pasture growth and grazing for regenerating pastures, efficient irrigation, and development of waste management plans including composting as an entrepreneurial opportunity to sustain the livestock business.

Hub #: 103

Expanding Precision Agriculture Education and Certification to Secondary Students

Primary Institution: Parkland College, IL

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

The goals of the project are to establish a new Early College and Career Academy Program for high school students in precision agriculture and unmanned aircraft systems; establish work-based learning opportunities with regional employers; and increase participation of traditionally underrepresented students in agriculture. The stackable certificates combine coursework in Precision Agriculture and Unmanned Aircraft Systems and accelerate students' progress toward postsecondary credentials as well as provide an opportunity for students to obtain an FAA Commercial UAS Pilot Certification.

Hub #: 104

Technical Applications in Agriculture

Primary Institution: Central Lakes College, MN

Secondary Institution: Curriculum for Agriculture Science Education, MN

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

This project developed a year-long secondary curriculum consisting of hands-on activities aligned with agricultural technician postsecondary and industry standards. A professional development program prepares teachers for implementation and curriculum access nationwide. The project developed curriculum modifications and engaged teachers and students in learning and practicing the subject matter. Industry organizations worked with the project to connect 88% of the teachers with a local industry dealer or OEM to partner with for accessing equipment and practical experiences.

Hub #: 105

GIS-Skilled Technicians in Agriculture-Related Sciences (GSTARS)

Primary Institution: University of Arkansas-Cossatot, AR

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

The GSTARS project integrates GIS skills into agriculture and science courses, such as soil science, forestry, and natural resources. The project developed a new course, Introduction to GIS in Agriculture, and created a Certification of Proficiency in GIS Technology available through the agriculture program. Students use technology and applications to analyze spatial data using ESRI's ArcGIS tools in data collection, remote sensing, drone operation, map design, and spatial analysis.

Hub #: 106

Modernizing Agriculture Technician Education in Appalachian Northeast Georgia

Primary Institution: North Georgia Technical College, GA

Discipline: Agricultural and Environmental Technologies

Grant Type: Small New to ATE

This project addresses the local agriculture (ag) industry's critical need for technicians with hands-on technical and soft skills. It responds to the growing demand for technicians as the Northeast Georgia ag industry expands. The region has witnessed several ag equipment manufacturers break ground for new facilities in 2019. This growth increases the need for skilled technicians in ag, advanced manufacturing, and geospatial technology. The project discovers how the community, through its colleges, can engage the ag industry and Appalachians in developing ag technicians and breaking the poverty cycle.

Hub #: 107

Preparing the Agricultural Workforce in Southwest Ohio (PAWSO)

Primary Institution: Sinclair Community College, OH

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Facing an aging agricultural workforce, Sinclair's PAWSO, backed by NSF's ATE 2022 grant, enhances its agricultural sciences programs to meet Ohio's urgent needs. Targeting diversity, it aims to uplift women, people of color, and the formerly incarcerated. Leveraging partnerships with prison and career technical education programs, Sinclair targets K-12 students and workers needing upskilling. Offering stackable certificates, PAWSO ensures direct job pathways, nurturing a diverse, ready agricultural workforce for Ohio.

Hub #: 200

EARTh Center: Amplifying ATE Projects with Enhanced Services & Opportunities

Primary Institution: Central Carolina Community College, NC

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Center

The Environmental and Natural Resource Technology (EARTh) Center provides a variety of services and opportunities to support ATE projects. Services provided by the EARTh Center include: virtual training simulations, instructional design, DACUM facilitation, and mentoring. The center also provides several professional development opportunities for faculty, ranging from webinars, to virtual fellows programs, to in-person workshops. Please stop by and learn more about how the EARTh Center can have a positive impact on you and your project!

Hub #: 201

Geospatial Remote Sensing Hawaii

Primary Institution: University of Hawaii, HI

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Hawaii Community College is proposing to develop a new Certificate of Competence that will focus on training students in the collection and management of remote sensing data used in geospatial analysis. The proposed certificate will consist of four new courses, two of which will be developed by modifying existing courses found in two programs: Tropical Ecosystem and Agroforestry Management (TEAM); and Architectural, Engineering and CAD Technologies (AEC). These courses are intended to supplement AS degrees to help fill the growing need for remote sensing technicians on the Island of Hawaii.

Hub #: 202

Addressing Student Skills Gaps in Water Treatment Operator Education Utilizing Virtual Reality Enabled Curriculum Resources

Primary Institution: Clemson University, SC

Secondary Institution: Central Carolina Technical College, SC

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Water treatment operators are essential to the environmental services infrastructure, ensuring that water is safe for human consumption. This sector currently faces a labor shortage, with up to half of the nation's treatment operators retiring within the next five years. WaterDROPs (Developing Resources for Operators) is building the next generation of training using VR to reach a diverse group of learners through a partnership of a research university for VR development, a technical college for the applied training experience, and the collective wisdom of practitioners in the field.

Hub #: 203

Workforce for Water

Primary Institution: University of Hawaii, HI

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

Workforce for Water is a consortium between Hawaii Community College and Maui College. As the wastewater industry moves towards new and efficient technologies that protect public health and the environment, we are addressing a critical technician workforce shortage needed to replace 88,000 cesspools with Individual Wastewater Systems (IWS) by 2050, as mandated by the Hawaii State Legislature. Our goal is to develop an Advanced Professional Certificate to support a sustainable talent pipeline in the trades and technology sectors related to IWS, cultivating a thriving and resilient Hawaii.

Hub #: 204

Improving Industry Based Skills in Environmental Studies at a Community College

Primary Institution: Ulster County Community College, NY

Discipline: Agricultural and Environmental Technologies

Grant Type: Small New to ATE

The overarching goal of the Industry-Based Skills for Undergraduate Success (IBSUS) project is to improve student retention and career readiness in the SUNY Ulster Environmental Studies program through three sets of applied learning activities designed to build hard and soft skills. The project specifically satisfies the growing demand for skilled STEM graduates in the Hudson Valley, NY region; addresses hard/soft skills gaps in job applicants between graduates and industry expectations; and enhances recruitment of underrepresented groups in STEM, especially females.

Hub #: 205

CREATE Energy National Center

Primary Institution: Madison Area Technical College, WI

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Center

The U.S. is in the midst of a once-in-a-century transformation of its energy infrastructure. The energy industry has a large and rapidly growing need for a skilled technical workforce, and this presents a current and future challenge for the two-year college community. The CREATE Energy Center empowers energy education programs and faculty nationwide to help U.S. industry compete in the dynamic and growing energy marketplace that underpins the global economy.

Hub #: 206

Creating an Industry Recognized Energy Storage Certification Credential

Primary Institution: Madison Area Technical College, WI

Secondary Institution: North American Board of Certified Energy Practitioners, NY

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

The rapid growth of energy storage, and the safety issues presented by new lithium-ion battery technology, have made clear that there is a pressing need for industry standards for residential and small commercial energy storage systems. The CREATE Energy Center, the North American Board of Certified Energy Practitioners (NABCEP), and the Midwest Renewable Energy Association (MREA) are developing an industry recognized certification in Energy Storage Technology that will provide uniform standards of practice for professionals working in the field.

Hub #: 207

Expanding Advanced Renewable Energy Technician Education in a Technical College

Primary Institution: Lakeshore Technical College, WI

Discipline: Agricultural and Environmental Technologies

Grant Type: Small New to ATE

With guidance from our Business and Industry Leadership Team (BILT), we will develop solar photovoltaic and battery storage instructional labs along with learner-focused, culturally responsive curriculum. Our curriculum will complement our Wind Energy program in order to attract and produce renewable energy technicians from low-income, nontraditional, rural, and racial and ethnic minority backgrounds.

Hub #: 208

Collaborative Research: A Solar and Wind Innovation and Technology Collaborative for Hawaii (SWITCH)

Primary Institution: Institute for Future Intelligence Inc., MA

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

This project cultivates the next generation workforce to lead Hawaii's transition to 100% renewable energy. Renewable energy production often confronts other basic needs such as food, water, and culture, as its distributed nature demands a lot of space. As such, large-scale deployments of renewable energy generators would be unthinkable without establishing wide social acceptance. This project will supplement these sociotechnical elements to existing courses in community colleges and use the social environments of public schools as testbeds for students to learn and practice those soft skills.

Hub #: 209

Advanced Technological Education Network for Utilities and Energy Technical Education

Primary Institution: Northeast Wisconsin Technical College, WI

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

The Utilities and Energy Coordination Network addresses workforce shortages in the energy and utilities sectors. It is designed to expand training opportunities; create new programs; and develop curriculum for the high-demand, energy-related roles across the nation. The project is creating a platform for industry, higher education institutions, and other stakeholders to share resources and generate partnerships in gas utility, electrical power distribution, solar technology, telecommunications, and utility apprenticeships.

Hub #: 210

Smart Start to Skilled Technical Careers in Energy Management Technology

Primary Institution: Northeast Wisconsin Technical College, WI

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

The Smart Start project's disciplinary focus is energy management education. Activities include conducting a needs assessment, educational materials development, professional development for secondary instructors, industry and career exploration, and delivery of Energy Controls Career Pathway Certificate content with student and instructor supports to expose students, instructors, and educational leaders to an energy world today driven by smart technology.

Hub #: 211

Enhancing Career Pathways to Green Jobs in High-Performance Building Technology

Primary Institution: Sinclair Community College, OH

Discipline: Agricultural and Environmental Technologies

Grant Type: ATE Project

To meet the demand for a qualified built environment workforce, this project developed a model education program to attract and recruit students into sustainability-focused built environment careers and accelerate attainment of postsecondary credentials. We are strengthening the STEM pipeline for building performance technicians starting in high school to develop pathways to in-demand, "green" built environment careers. Students receive wrap-around support, resulting in more students completing credentials in less time.

Hub #: 212

Biofab Explorer: Designing A Dual Enrollment Pathway to Careers in Biofabrication

Primary Institution: CAST, Inc., MA

Secondary Institution: Manchester Community College, NH

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Discover our co-developed career guidance curriculum at the nexus of biotech and manufacturing. Learn how we build a competency-based curriculum and created flexible options for implementation for CTE, dual-enrollment, and community college students. Explore two hands-on simulations: Growing an Organ, and Automation. Join us in shaping the next generation of biofabrication professionals.

Hub #: 213

A Bridge to Bio-Link's Future

Primary Institution: Digital World Biology, WA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

This project provided a transition between the Bio-Link national ATE center and InnovATEBIO. We have continued improving Biotech-Careers.org and have developed four ways for career exploration—people, places, products, and pathways to careers. Roughly, 100,000 students use Biotech-Careers.org every year. Our preliminary data show positive results in career-related attitudes when students attend presentations on the website or use the website in a course. We will be exploring this further to better understand which aspects of the website have the greatest influence.

Hub #: 214

A Collaborative Approach to Work-Based Learning in Biotechnology: Building Inclusive Lab Environments

Primary Institution: City College of San Francisco, CA

Secondary Institution: University of California, San Francisco, CA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Our project brings together a community college biotech program and a top-tier research university and employer of biotechnicians, in a collaborative approach to work-based learning to build inclusive labs. We have created novel parallel trainings for: (1) employers to operationalize inclusivity in how they hire, train, and supervise; and (2) community college students to skillfully navigate the workplace and recognize and foster inclusive workplace practices. More than 800 scientists and 150 students have engaged in our trainings which have been adapted for academic and industry settings.

Hub #: 215

Advancing Progress in Industrial BioManufacturing to Accelerate Workforce Readiness

Primary Institution: Bioindustrial Manufacturing and Design Ecosystem, CA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

This project is leading the development of workforce programming designed to increase career readiness and occupational competencies in the emerging space of bioindustrial manufacturing. New curricula are needed to teach critical engineering principles such as analysis, design, development, scale-up, and commercialization of bio-based processes and products. Instructional modules will be created to guide community colleges with materials adaptation and course integration during the scale-out phase of the project.

Hub #: 216

Atlanta Technical College Bioscience Emerging Technicians Project

Primary Institution: Atlanta Technical College, GA

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

The vision of the Bioscience Emerging Technician project is to increase knowledge of bioscience career opportunities among historically underserved students in Atlanta, GA. This project will facilitate connections between high school students and bioscience companies in Atlanta. The project will support Georgia's bioscience industry with a pool of skilled individuals. Project goals are to: (1) recruit dual-enrollment students, (2) increase awareness of bioscience career opportunities, and (3) increase graduation rates of the project's students in comparison to the college's graduation rate.

Hub #: 217

Expanding a Multi-Skilled STEM Technician Pipeline to Meet Industry Needs, "Bio Blend 2.0"

Primary Institution: Johnston Community College, NC

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Bio Blend 2.0 prepares students to meet biotechnology hiring needs and improve employment outcomes for underserved populations, specifically individuals on the autism spectrum. Bio Blend 2.0 modifies Applied Engineering and Bioprocess Technology curriculum to provide distributed control system software training, work-based learning, and internship opportunities with a goal of enrolling 50 students in this project. This project also seeks to increase the number of students with autism at JCC by 150% leading to an increased number of students on the autism spectrum in STEM programs.

Hub #: 218

Increasing Student Retention and Recruitment through Alumni Programs, Speed Networking, and Industry Engagement

Primary Institution: Austin Community College, TX

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

This project will drive community college student retention and recruitment by fostering mutually beneficial relationships between students, alumni, industry, and the community to help address the increased need for skilled biotechnicians nationwide. To accomplish this, the project will establish an alumni network to document alumni career pathways for the purpose of educating current and future students and develop employee and alumni outreach tools to increase alumni and industry engagement creating direct industry interactions between existing and potential community college students.

Hub #: 219

BIOTECH Pathways: Expanding Pathways from High School into the Biotechnology Workforce

Primary Institution: Harford Community College, MD

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Harford Community College's (HCC) BIOTECH Pathways project creates paths from high school, through HCC, to biotech careers. HCC engages high school students, families, and educators in hands-on workshops to increase knowledge of biotechnology applications and careers, as well as recruit new students into its AAS and certificate programs. HCC also partners with industry to facilitate student internships and provide innovative curriculum and research experiences to help meet the demand for skilled biotechnicians in the BioHealth Capital Region.

Hub #: 220

Building an Advanced Therapy Technician Workforce in Southeastern PA

Primary Institution: Montgomery County Community College, PA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Recent growth of the cell and gene therapy (CGT) sector in the Philadelphia region has led to a skilled technician shortage especially for the manufacture of these advanced therapies. A regional CGT Industry-Academic Collaborative was created to develop curriculum and training programs to meet the need. New curriculum was disseminated through standard operating procedures and hands-on faculty workshops. Student workshops and other experiential learning opportunities increased awareness of the CGT field and related career paths and will strengthen the current and future CGT workforce.

Hub #: 221

Building Biobadges Into a Traditional Biology Program to Fulfill Workforce Needs and Support Program Equity

Primary Institution: Chabot-Las Positas Community College District, CA

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

We transformed the college's Biology major sequence, which supports transfer to four-year programs, by developing and incorporating new experiences that build hands-on and analytical biotechnology skills. Student proficiency is assessed incrementally as they acquire new skills. Virtual badges are awarded to document their proficiency. Embedding biotechnology skills into this program has enabled us to add value and meet local skilled workforce demand in biotechnology, without adding a stand-alone biotechnology program. In surveys, students expressed that they value the new biotechnology experiences.

Hub #: 222

Building the Cell Therapy and Flow Cytometry Workforce

Primary Institution: Frederick Community College, MD

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

In response to a growing industry need, Frederick Community College was awarded an NSF ATE grant with the goals of procuring a flow cytometer and implementing a new flow cytometry course. This project also aims to increase awareness of the biotechnology program, particularly among high school students and students from backgrounds that are underrepresented in science, technology, engineering, and math (STEM) fields. In the first year of the project, the flow cytometer was procured and the course was designed and implemented. A total of 16 students gained flow cytometry skills; and enrollment in the program has doubled.

Hub #: 223

Creating Equitable Pathways to Careers in Biotechnology

Primary Institution: Compton College, CA

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

The biotech certificate and degree programs at Compton College train students in the fundamental skills and techniques to work in the field of biotechnology, specializing in biomanufacturing. The coursework was developed with feedback from our local biotech industry professionals and incorporates student-centered learning activities with embedded pedagogies focused on real-world problems. Students complete a DNA barcoding CURE in the introductory biotechnology course, an equitable practice that brings the benefits of research to all enrolled students.

Hub #: 224

Developing Classroom-Based Undergraduate Research Experiences (CUREs) in Antibody Bioengineering

Primary Institution: Digital World Biology, WA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Antibody engineering is a significant biotechnology endeavor. This project enlists faculty, industry-advisors, and students across the U.S. to create antibody engineering CUREs. The aims are to: (1) develop laboratory and computer modules to support CURES; and (2) investigate hackathons as a novel strategy for engaging participants in collaborative curriculum development. Our three hackathons with more than 120 participants have produced CURE materials, publications, student posters, and demonstrated the value of the approach. Participants have been enthused and many have repeated the experience.

Hub #: 225

Developing the Skilled Technical Workforce for Regenerative Medicine Biomanufacturing in the Piedmont Triad Region of North Carolina

Primary Institution: Wake Forest University School of Medicine, NC

Secondary Institution: Forsyth Technical Community College, NC

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

The Skilled Technical Workforce for Regenerative Medicine (RM) project addresses the need for a skilled technician workforce in RM biomanufacturing with the KSA's needed through: (1) K-12 and community college faculty development; (2) the design and implementation of a regional RM educational ecosystem with multiple entry options for community college-prepared technicians and career pathways for incumbent employees; and (3) dissemination of knowledge of new discovery and innovation and the research-based KSA's for the RM field to community colleges and their academic and industry partners.

Hub #: 226

Dual Credit High School-Community College DNA Sequencing and Genomics Project

Primary Institution: Austin Community College, TX

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

The NSF-ATE Dual Credit High School Community College DNA Sequencing and Genomics Project is establishing a first of its kind DNA sequencing and genomics facility. Dual credit high school and two-year community college students operate the DNA sequencing and genomics facility as part of their curriculum to complete an industry recognized Level-I Certificate in Biotechnology from Austin Community College through dual credit high school and community college career and technical education courses.

Hub #: 300

InnovATEBIO National Biotechnology Education Center

Primary Institution: Austin Community College, TX

Discipline: Bio and Chemical Technologies

Grant Type: ATE Center

The InnovATEBIO National Center for Biotechnology, located at Austin Community College, partners with Forsyth Technical Community College, DNA Learning Center/ Cold Spring Harbor, Finger Lakes Community College, Digital World Biology, BABEC, CSBI, and Mira Costa College. The center works to advance the education of skilled technicians for the nation's biotechnology workforce. InnovATEBIO develops hubs and state teams serving the bioscience community; develops faculty/ administrative leadership; and partners with trade organizations, ATE projects, and industry to provide faculty workshops.

Hub #: 301

Expanding the Biotechnology Pipeline to Adults Seeking Reemployment

Primary Institution: Los Angeles Mission College, CA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

This project introduces a highly effective one-semester biotechnology certificate program designed to fast-track adult learners into the biotech workforce. Key program components include industry visits, guest speakers, job interviews, and project-based learning. This holistic approach has led to remarkable skill development and successful job placements, affirming the program's capacity to prepare students for biotech careers in a short timeframe.

Hub #: 302

Expanding the Cell Science and Immunological Testing Workforce by Developing a Diverse and Inclusive Credentialed Biotechnology Program

Primary Institution: Santa Monica College, CA

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

The biotechnology sector is rapidly growing and in need of a larger and more diverse pool of talent. To address this need, we developed an equity-centered technician education program that will build our students' confidence by capitalizing on their innate skills and strengths. To ensure that we recruit and support diverse students, we curated outreach events that targeted potential students, educators, and administrators. Through these events, we enrolled a diverse group of students into our introductory course and increased awareness about the program and workforce on our campus.

Hub #: 303

Expansion, Curriculum Evolution, and Enhancement of Biotechnician Training

Primary Institution: The Wistar Institute, PA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Since 2000, the Wistar Institute has led the Biomedical Technician Training (BTT) Program to prepare community college students for laboratory positions. Expansion, Curriculum Evolution, and Enhancement during BioTechnician Training (ExCEEd BTT) has three primary goals: (1) include more students from new community college partners in the region; (2) develop a novel curriculum based on Wistar research that effectively engages underrepresented students; and (3) redesign the program as a one-summer pre-apprenticeship with internships in academic and industry labs. Outcomes are presented.

Hub #: 304

Implementation of an Industry-Recognized Credentialing System for Biotechnicians

Primary Institution: Georgia Bio, GA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

This project focuses on the education of technicians for the advanced technology fields that drive the nation's bioeconomy. Life science companies are often unfamiliar with the skillset of applicants. Skillset confidence can be communicated by an effective credential. Industry identifies the Biotechnician Assistant Credentialing Exam (BACE) as an effective tool to convey capabilities. This project expands the BACE in five states as a tool to certify an individual's capabilities and accelerate the development of the bioscience workforce.

Hub #: 305

Improving Biopharmaceutical Technician Education with Cell and Gene Therapy Credentials

Primary Institution: Montgomery College, MD

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

Montgomery College's (MC) Biopharmaceutical Technician Education Program trains students for a career in cell and gene therapy. Activities include: creation of a cell and gene therapy course and certificate, hands-on workshop for secondary science teachers and counselors, creation of biomanufacturing skill microcredentials designed with industry input, and targeted promotion of MC's biotechnology program in underrepresented communities. Results include: 10% increase in MC biotechnology students (currently 109 unique students), a successful biotech workshop for 10 teachers, and a statewide Cell and Gene Therapy certificate.

Hub #: 306

Improving Biotechnology Outcomes through Pre-Professional Experiences and Industry Partnerships

Primary Institution: Cerritos College, CA

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

This project introduces a biotechnology program to enable Cerritos College students to enter the sector's high growth, high wage job market. We developed three classes, two Certificates of Achievement, and an AS degree in Biotechnology. To generate student interest in biotechnology as a course of study and potential career, we offer a "Hands-on Biotech" workshop series that introduces biotechnology without the burden of earning a grade. Students learn different lab skills and techniques used in biotechnology labs like small volume transfer, PCR, gram staining, and more.

Hub #: 307

Improving the Biotechnology Internship Experience to Better Prepare Student Technicians for the Modern Workforce

Primary Institution: Valencia Community College, FL

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

Internships are a proven method of increasing employment opportunities; Valencia College's grant focuses on improving the internship experience to better prepare students to enter the workforce. The grant has four objectives: (1) increasing the number and variety of internship opportunities; (2) developing workforce skill, and biotechnology specific education, not addressed in the current curriculum; (3) enhancing the internal experience for students by updating the outdated structure; (4) expanding the biotechnology community by hosting an annual symposium and expanding outreach activities.

Hub #: 308

Incorporating a Course-Based Research Experience in High School and Community College Courses in Southeast Nebraska

Primary Institution: Southeast Community College, NE

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

To directly connect biotechnology to students' lives, students collect DNA samples from their own pets as they engage in the course-based research project aimed to examine the role a dog's genes play in its social behavior. This project provides a model for supporting high school teachers, including those in resource-limited areas, as they incorporate new engaging curricula. It also serves as a model for partnering with industry and other organizations to increase awareness, knowledge, and skills related to biotechnology careers important to developing a competitive STEM workforce.

Hub #: 309

Increasing Student Enrollment, Education, and Employment in Chemical Technology

Primary Institution: Cape Fear Community College, NC

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

The Chemical Technology program at Cape Fear Community College is unique to the state of North Carolina. The two-year program helps train the next generation of laboratory scientists who wish to seek job opportunities in the pharmaceutical, environmental, food/beverage, forensics, cosmetics, chemical production, and quality control fields. This ATE project features four activities that have increased awareness and enrollment of the program. Visit our information session to learn how the management team effectively involved employers, students, and teachers in Southeastern North Carolina.

Hub #: 310

BioSCOPE: A Work-Based Learning Student Success Story

Primary Institution: San Mateo County Community College District, CA

Secondary Institution: Bay Area Bioscience Education Community, CA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

BioSCOPE, or Biotechnology Supply Chain Operations Projects In Education, is a collaborative grant project between biotech faculty at Laney College, Skyline College, and BABEC (Bay Area Bioscience Education Community). The project provides community college students the opportunity to produce low-cost educational biomaterials while building biotechnology and biomanufacturing job skills. The products are distributed to high schools that use them in biotech lessons. This ATE Connects will focus on one of the successes of this project, the student site or supply chain coordinator.

Hub #: 311

Integrating Biotechnology and Applied Engineering to Meet Emerging Advanced Technological Workforce Needs

Primary Institution: Johnston Community College (JCC), NC

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

Integrating Biotechnology and Applied Engineering to Meet Emerging Advanced Technological Workforce Needs (Bio Blend) sought to accomplish three goals: (1) create and implement a unique curriculum certificate integrating biomanufacturing with applied engineering; (2) create a multi-skilled talent pipeline from college to industry; and (3) provide hands-on education in a simulated drug manufacturing environment. The project redeveloped four courses and added the industry standard DeltaV certification. JCC was the first community college in North Carolina to offer DeltaV certification training.

Hub #: 312

KKC Biotech: Developing a Biotechnology Degree Program to Train Skilled Biotechnicians in Chicago

Primary Institution: City Colleges of Chicago, IL

Discipline: Bio and Chemical Technologies

Grant Type: Small New to ATE

We have worked with our industry partners to create an AAS degree program in Biotechnology that is aligned with industry needs. We created eight new courses (e.g., Biomanufacturing) and revised two existing courses (e.g., Applied Microbiology and Survey of Biotechnology) in this process. Final approval from the Illinois accreditation board is in process. We have developed and implemented a Course Embedded Undergraduate Research Experience (CURE), into one section of General Biology 1. Our project involves synthetic biology; and we are changing to a project with yeast.

Hub #: 313

NOVA Biotechnology Leadership in Education (NOBLE) Project

Primary Institution: Northern Virginia Community College, VA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

A thriving biotechnology industry exists in the Washington, D.C., metropolitan area. With this regional infrastructure in place, potential workers must be prepared to fill skilled biotechnology positions. The NOVA Biotechnology Leadership in Education (NOBLE) Project seeks to answer this acute industry need by recruiting, training, and upskilling students through the Biotechnology Program of Northern Virginia Community College (NOVA). NOVA's Biotechnology Program is ideally situated to provide students the skills to achieve successful employment in biotechnology.

Hub #: 314

Strategies for Recruiting High School Students to Your Biotechnology Program

Primary Institution: Bay Area Bioscience Education Community (BABEC), CA

Secondary Institution: Skyline College, CA

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Enrollment to biotechnology pathways has been a challenge for many programs. Though more high school students are taking dual enrollment biotech courses, they often do not matriculate to the college's biotech pathways. We will share strategies used to engage and recruit dual enrollment high school students to your program. This includes the visual tools and activities we used that can be easily modified to match your program's pathway. In addition, we will share a framework for a two-week summer course that was the focus of our recruitment outreach with students.

Hub #: 315

Skills for Biomedical Emerging Technology Applications

Primary Institution: Forsyth Technical Community College, NC

Secondary Institution: Biosciences Core Skills Institute, KS

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

BETA Skills looks at emerging technologies skill requirements in the biomedical emerging technologies space, where tissue engineering is an example. We defined BETA Skills by interviewing employers across the United States. Skills which rose to the top, in terms of needs for preparing skilled technical workers were: GMP, including good documentation, problem solving and teamwork (audit interactions). We set up BETA professional development programs to cover these skills. We worked with the Bioscience Core Skills Institute and developed three microcredentials, for which 12 faculty learned and became evaluators.

Hub #: 316

Technician Training in CRISPR-Based Gene Editing

Primary Institution: Delaware Technical & Community College, DE

Secondary Institution: Gene Editing Institute, DE

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

The goals of this project are to: (1) continue to update and provide effective training in state-of-the-art gene editing techniques and approaches–along with rigorous coursework–to students in a two-year Biotechnology program to prepare them for bioscience careers and/or encourage them to pursue four-year degrees; (2) disseminate the most advanced and updated curriculum; and (3) model best teaching practices to community college instructors through faculty-focused professional development gene editing workshops.

Hub #: 317

Training the Skilled Biomanufacturing Workforce through Innovative Internships in Protein Biomanufacturing

Primary Institution: Los Angeles Pierce College, CA

Secondary Institution: Cold Spring Harbor Laboratory, NY

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

The ASPIRE Biotech program at Pierce College incorporates strategic partnerships with local high schools, four-year biomanufacturing programs, and local biotech companies. Our unique training methodologies, combining independent project, near-peer mentoring, and entrepreneurship, has generated excitement for biotech careers in our institution. We started our first two years with full enrollment, doubling our course offering with a high school dual enrollment program. The ASPIRE internship program provides students with real-world working experience in protein biomanufacturing (Taq polymerase).

Hub #: 318

Using High-Resolution Mass Spectrometry to Develop Advanced Laboratory Skills in Collaboration with Industry

Primary Institution: Forsyth Technical Community College, NC

Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

To keep pace with local advances in research and industry, the National Center for the Biotechnology Workforce at Forsyth Technical Community College acquired a high-resolution mass spectrometer. With this technology, meaningful associations between education and the workplace were provided by having students collaborate on industry-relevant projects alongside bioscience companies. The students developed and implemented standard operating procedures. Some presented their findings at conferences and were accepted to four-year institutions. Others were offered positions in bioscience labs.

Hub #: 319

Technician Navigator

Primary Institution: Pellet Productions, Inc., MA

Discipline: General Advanced Technological Education

Grant Type: ATE Project

Technician Navigator will feature original content produced by technicians for students that will include blogs, videos, audio materials, and forums. These materials will inform and engage students, families, and educators about the ATE program and technician education. Through virtual events and one-on-one sessions developed by faculty and industry representatives, technicians will guide prospective students through the college decision-making process, supporting them through enrollment. This will be an experiential resource designed to recruit students into technician education programs.

Hub #: 320

Power of Us: Increasing Female Enrollment and Retention in Career and Technical Education Programs

Primary Institution: Durham Technical Community College, NC

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The Power of Us project increases female enrollment and retention in electrical systems, biomedical, automotive, information technologies, welding, and machining, which are primarily male-dominated careers. We create an environment where female students can thrive in CTE; and encourage females students to pursue nontraditional careers. Project activities include a summer STEM camp, welcome events, taste of industry events for CTE counselors, and a speaker series conducted by female industry leaders to inform and discuss their career and educational pathways, microaggressions, and biases.

Hub #: 321

Expanding Pathways and Support for Transportation Technology Education and Careers at an Urban Minority Serving Institution

Primary Institution: Community College of Philadelphia, PA

Discipline: General Advanced Technological Education

Grant Type: ATE Project

The Community College of Philadelphia is creating new pathways for women and underrepresented minorities into the transportation industry. The transportation service and repair sector is seeing a need for more technicians and the conventional ways of attracting new students/employees into these programs leaves a large gap that can be filled with women and underrepresented minorities. The grant will demonstrate new ways to reach with these groups of students who don't usually have an opportunity to learn about the benefits of working in the transportation service sector.

Hub #: 400

National Information Technology Innovation Center (NITIC)

Primary Institution: Columbus State Community College, OH

Discipline: Information and Security Technologies

Grant Type: ATE Center

Experienced community college leaders in information technology are collaborating with industry to create the National Information Technology Innovation Center (NITIC). The center is led by Columbus State Community College with core partners Collin College, Lone Star College, Maricopa Community College System, and Sinclair Community College creating a future-focused community of practice network. NITIC will develop educational materials, curricula, and teaching resources, with a focus on emerging technologies while strengthening and promoting proven best practices from previous center work.

Hub #: 401

National Cybersecurity Training & Education (NCyTE) Center

Primary Institution: Whatcom Community College, WA

Discipline: Information and Security Technologies

Grant Type: ATE Center

The National Cybersecurity Training and Education (NCyTE) Center at Whatcom Community College (WCC) is a grant-funded, Advanced Technological Education (ATE) National Center. NCyTE strives to expand the cybersecurity workforce to protect our nation from ever-evolving threats by building education pathways, developing leading-edge curriculums, cultivating industry engagement and career opportunities, and supporting faculty and leadership development in cybersecurity education.

Hub #: 402

National CyberWatch Resource Center (NCRC)

Primary Institution: Prince George's Community College, MD

Discipline: Information and Security Technologies

Grant Type: ATE Center

NCRC provides resources that raise readiness: the readiness to learn, readiness to teach, readiness to be certified, and readiness to advance throughout a cybersecurity career. Readiness is essential to diversifying and expanding the cybersecurity resource pool. Our research shows that student readiness is improved through curriculum designed to diagnose and overcome misunderstanding and misconception. The formative credentials developed using these tools were found to eliminate bias in hiring community college graduates and tripled the pool of capable job candidates for open positions.

Hub #: 403

National Convergence Technology Center

Primary Institution: Collin County Community College, TX

Discipline: Information and Security Technologies

Grant Type: ATE Center

The National Convergence Technology Center sunset at the end of September 2023 after 19 years as first a regional and then a national center. Drop by to pick up information on legacy documentation that we have to share on successful practices, including "Implementing the Business & Industry Leadership Team (BILT) Model of Employer Engagement," "How to Plan and Deliver Successful Professional Development Events," and other resources and strategies that could save you time and help your project be successful.

Hub #: 404

Information Technology Skill Standards (ITSS), 2020 and Beyond

Primary Institution: Collin County Community College, TX

Discipline: Information and Security Technologies

Grant Type: ATE Project

ITSS 2020 has created both a detailed process for developing skill standards for any technical **discipline** and a future-facing set of IT Skill Standards for the six most critical IT job clusters, led by employer experts nationally. Stop by to learn about the project's in-person Skill Standards Summits that will be offered between now and August 2024. These events will enable you to learn how to create skill standards in general and how to use the ITSS Skill Standards to improve your programs in IT. The events are free; and a travel stipend will be available to offset most travel expenses.

Hub #: 405

An Initiative of Closing the Cloud Computing Skills Gap

Primary Institution: Hillsborough Community College, FL

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project will demonstrate an effective way for community colleges to work together to optimize technical workforce education and training efforts. It includes the potential adoption and duplication of project methods in other computer technology **discipline**s to bring technicians to the market. Our students from both secondary and postsecondary sectors will have opportunities to be trained in cloud computing, increasing enrollment and pathways to a new emerging technologies. The project will produce curriculum and resources to share with regional and national audiences.

Hub #: 406

Appalachian Solutions in Cybersecurity Innovation Initiative: Cybersecurity Technician Pipeline Development in Rural, Eastern Kentucky

Primary Institution: Kentucky Community & Technical College System, KY

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

This project creates pathways from high school to four-year universities through our community college. The cybersecurity pipeline gives students in a rural Appalachian region, opportunities both locally and remotely. The project includes creating the first two-year cybersecurity degree in Kentucky with four tracks and eight certificates. A CyberBILT (Business and Industry Leadership Team) also gives local cybersecurity industry leaders autonomy over the two-year associate degree program curriculum to ensure relevancy and provide students access to internships.

Hub #: 407

Arkansas Delta Information Systems and Cyber Technician Education Initiative

Primary Institution: Phillips Community College of the University of Arkansas, AR

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project will increase the number of skilled information systems and cyber technicians that graduate with certificates and degrees, earn industry certifications, and are prepared to enter the workforce. To reach this end, the project will develop and implement recruitment and retention strategies, provide support to maximize student success, develop and revise curriculum to meet industry changes, provide professional development for faculty to ensure high-quality teaching and learning, and continue to strengthen the bond between industry and business leaders in the community.

Hub #: 408

Attracting the Next Generation Cybersecurity Workforce (ACT)

Primary Institution: Massachusetts Bay Community College, MA

Discipline: Information and Security Technologies

Grant Type: ATE Project

The goal of the ACT project is to reduce the gap in the cybersecurity workforce in Massachusetts while addressing diversity in the field. ACT aims to recruit, retain, and graduate underrepresented, especially female, students by collaborating with area high schools for recruitment, and with industry partners for access to internships and mentoring. We have created a small Cyber Range, which was used with high school students over the summer to practice labs; developed new hands-on exercises with industry partners; and engaged students in career mentoring with support from industry partners.

Hub #: 409

Building a Data Driven Pathway in Data Science Leading to Student Success

Primary Institution: Los Angeles Harbor College, CA

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

Los Angeles Harbor College's project has focused on the development of career-technical education pathways to provide students with an introduction to the data science field within the context of the social sciences. Two certificates, a Social Sciences Data Analytics Certificate of Achievement and a Business Data Analytics Certificate of Achievement, allow students to obtain high-demand labor market skills relevant to several industries including business, research, education, technology, healthcare, marketing, supply chain, and government agencies.

Hub #: 410

Building Career Interest in Computer Science through Advanced Real-World Technology Projects

Primary Institution: Education Connection, CT

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Building Career Interest in Computer Science through Advanced Real-World Technology Projects (CICSTART) NSF ATE project engages high school students in a team-based learning environment and technical projects. CICSTART is delivered through a Saturday program that includes technical and professional skills-based curriculum based on workforce needs. Each cohort is hosted on a community college campus over five Saturdays. A virtual Summer Teacher Workshop is offered to high school and community college educators where attendees participate in the same lessons as CICSTART students.

Hub #: 411

Career Accelerator Cybersecurity Program

Primary Institution: Amarillo College, TX

Secondary Institution: Innovation Outpost, TX

Discipline: Information and Security Technologies

Grant Type: ATE Project

Our ATE project integrates education with the cybersecurity sector, focusing on curriculum delivery, faculty recruitment, CIS Summer camps for K-12, industry ties, and mentorship, backed by clear data reporting. Beyond technical skills, our Cybersecurity Accelerators include the ©2023 Human Skills Project: a 12-week parallel program emphasizing both digital proficiency and vital interpersonal skills, preparing students for today's and future workplaces.

Hub #: 412

Collaborative Research: Identifying and Investigating Pathways and Critical Junctures in Two-Year Information Technology Programs

Primary Institution: Florida State University, FL

Secondary Institution: Tallahassee Community College, FL

Discipline: Information and Security Technologies

Grant Type: Applied Research

Backtracking CTE Pathways aims to test and refine a method for understanding the pathways IT students take through college and into information technology careers. The Backtracking Technique captures pathway data, including institutional research, surveys, and interviews. These data are analyzed to identify successful student journeys toward AA or AS degrees, and those who changed programs or transferred to other institutions. The findings inform student supports, reveal enablers and hindrances, and identify the economic impact of those who pursue IT credentials.

Hub #: 413

Connecting the Coast to the Cloud

Primary Institution: Mississippi Gulf Coast Community College, MS

Discipline: Information and Security Technologies

Grant Type: ATE Project

The three main goals of this project are: (1) to design a new curriculum leading to an AAS degree and/or a certificate in Cloud Administration Technology; (2) to increase the supply and diversity of the IT workforce in the Mississippi Gulf Coast region by increasing the enrollment of military veterans and removing obstacles for attendance of other students; and (3) to improve curriculum for the existing certificate in IoT and Smart Technology to incorporate devices specific to those with needs. These goals will be met by working with local industry and high schools to enhance existing courses and develop new courses, while making the program more accessible to all students.

Hub #: 414

Cyber Data Analytics Education, Curriculum, and Workforce Development

Primary Institution: University of Hawaii, HI

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project will help to address the nation's need for skilled cybersecurity professionals by developing a cyber data analytics technician workforce development program. This program will deliver a blended education of cybersecurity and data science that will cover the risks, threats, and vulnerabilities faced by small businesses. The project will focus on associate degree students and will extend cyber data analytics across multiple **disciplines**, by offering industry relevant courses to students from degree programs in business, healthcare, accounting, electronics, and criminal justice.

Hub #: 415

CyberTech: Expanding Opportunities in Cybersecurity

Primary Institution: Broward College, FL

Secondary Institution: Florida International University, FL

Discipline: Information and Security Technologies

Grant Type: ATE Project

The CyberTech: Expanding Opportunities in Cybersecurity project seeks to improve cybersecurity education pedagogy and promote enrollment, retention, and credential completion. The project will address the need for technicians trained in the latest threats via a unique co-teaching model that pairs advanced graduate students with Broward College cybersecurity faculty to deliver training using a co-teaching model. This competency-based educational format targets high school dual enrollment and college students and builds a pipeline that reaches into high schools and through to graduate schools.

Hub #: 416

Developing an Industry-led Data Analytics Technician Program for Upstate South Carolina

Primary Institution: Spartanburg Community College, SC

Discipline: Information and Security Technologies

Grant Type: ATE Project

Data Analytics is a growing field in need of qualified technicians who can prepare, analyze, and visualize data to help businesses make strategic, data-driven decisions. This project addresses the South Carolina upstate's need for data analytics technicians from a Business and Industry Leadership Team (BILT) who will advise the college on the skills that data analyst technicians need. The project will create online courses in order to maximize flexible learning. Because data analytics technicians often work remotely, the project will focus on recruiting, retaining, and graduating women.

Hub #: 417

Developing an Online Cybersecurity Certificate with Stackable Credentials

Primary Institution: CUNY Borough of Manhattan Community College, NY

Discipline: Information and Security Technologies

Grant Type: ATE Project

The project aims to help meet the need for computer security specialists by developing an Online Cybersecurity Certificate with stackable college credits to prepare cybersecurity technicians in New York City. It will target high school students and incumbent workers. By mapping industry certifications or prior experiences, to credit-bearing college courses, the certificate program intends to increase timely completion of 30 college course credits. It will adopt materials from ATE cybersecurity centers, including curricular materials and faculty development activities.

Hub #: 418

Developing Cybersecurity Technicians through Expanded Pathways in Rural and Underserved Communities

Primary Institution: Lakeshore Technical College, WI

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

This IT Cybersecurity Specialist Associate Degree project addresses recruitment and retention by using best practices to broaden participation of underrepresented groups. Student club competition and summer camp recruitment activities highlight this project. Industry supports these initiatives through mentorship and role-modeling. The project targets curriculum development specific to cybersecurity, faculty professional development in cybersecurity, and lab space featuring state of the art infrastructure.

Hub #: 419

Distance-Enabled Industry-Led Data Analytics Technician Pathway (ILDAP)

Primary Institution: Bridgerland Technical College, UT

Discipline: Information and Security Technologies

Grant Type: ATE Project

The goal of the Distance-Enabled Industry-Led Data Analytics Technician Pathway (ILDAP) grant is to close the workforce skills gap in data analytics throughout the Intermountain West. To accomplish this task, Bridgerland Technical College is (1) transforming the current nascent data analytics BILT into a full BILT; (2) increasing instructor expertise through professional development; (3) developing distance-enabled data analytics courses to reach incumbent workers and women at home; and (4) recruiting and retaining girls and women into Bridgerland's Data Analytics program.

Hub #: 420

Emerging Cloud Hub Opportunities (ECHO)

Primary Institution: Miami Dade College, FL

Discipline: Information and Security Technologies

Grant Type: ATE Project

Our ATE project, Emerging Cloud Hub Opportunities (ECHO), aims to bolster the number of skilled and certified multi-cloud computing technicians in the region to meet the demands of the local and regional cloud workforce. To achieve this goal, ECHO is in the process of developing advanced technical certificates for various cloud specialties. The broader impacts of our project include expanding enrollment in credit programs among current regional IT professionals and extending undergraduate cloud technology training to cover multiple cloud domains and advanced topics.

Hub #: 421

Engaging K-12 Teachers to Help Build a Cybersecurity Workforce Pipeline

Primary Institution: Forsyth Technical Community College, NC

Discipline: Information and Security Technologies

Grant Type: ATE Project

Forsyth Tech has taken on a three-year project designed to help strengthen the cybersecurity footprint within the Triad area of North Carolina. The grant covers our two service areas, Forsyth and Stokes Counties, expanding to other counties in the third year. Each year eight K-12 CTE teachers are invited to obtain our cybersecurity certification within two semesters. Once they complete the certificate, they are given the opportunity to take the CompTIA Security + Exam and become adjunct instructors for the cybersecurity program at Forsyth Tech.

Hub #: 422

Engaging Rural Students in Advancement Opportunities through the Field of Data Analytics

Primary Institution: North Arkansas College, AR

Discipline: Information and Security Technologies

Grant Type: ATE Project

North Arkansas College has developed an Associate of Applied Science (AAS) degree in Data Analytics. This AAS degree will make effective use of the following: (1) immerse students in case studies and real-world data from the first semester; (2) integrate communication, collaboration, critical thinking, and employability skills into data analytics content throughout the program; (3) collaborate with local industry using a Business and Industry Leadership Team (BILT); and (4) focus on development of a more diverse STEM community. This project will lead to an increase in skilled technicians.

Hub #: 423

Enhancing Preparation of Students for Technical Careers in Cloud Computing Technologies

Primary Institution: Wake Technical Community College, NC

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project will create an up-to-date Cloud Infrastructure program to prepare students for high-demand technical careers. Back-to-industry faculty externships, conferences, and new industry relationships will allow faculty to prepare students to join a highly skilled workforce. The project will broaden student internship participation by serving women and minority owned small business clients that are recruited by the college's Center for Entrepreneurship. The project will also contribute to societal change as cloud technologies are more important than ever for remote work and learning.

Hub #: 500

Expanding Pathways to a Data Science Career by Developing a Certification in Data Science and Analytics

Primary Institution: County College of Morris (CCM), NJ

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

The initiative is to transform and strengthen the links between education and the state's economy to ensure New Jersey has the most skilled, educated, and innovative workforce in data science. CCM has built the infrastructure of a certificate and three degrees offering students the opportunity to pursue an education in data science. This year the grant supported student participation in the Women in Statistics Data Science Conference, Data Science Night, ASA DataFest, Career Awareness Day, and a Summer Institute. The grant also supported faculty professional development in the Python, PCEP exam.

Hub #: 501

Expanding Remote Delivery of Information Technologies Education in a Rural Environment

Primary Institution: North Arkansas College, AR

Discipline: Information and Security Technologies

Grant Type: ATE Project

North Arkansas College (Northark) is increasing the number of skilled information technologies technicians by (1) expanding remote delivery of content to the associate degree; (2) adding remote-access labs; and (3) enhancing curriculum so graduates have a broader, stronger skillset in emerging technologies including cloud technologies, virtualization, and Internet of Things (IoT). Northark has also increased internship opportunities and created opportunities for flexible/faster credential completion by providing multiple entry points into the program.

Hub #: 502

Expanding the Data Analytics Technician Pipeline from High School into College and High Demand Jobs in Southwest Ohio

Primary Institution: Sinclair Community College, OH

Discipline: Information and Security Technologies

Grant Type: ATE Project

Data science is evolving and technicians with data acumen will increasingly be in demand. Data skills include statistics, database management, SQL, Python, R, and visualization for use in both technology and non-technology sectors. Data professionals perform roles for growing volumes used across all industries. The pursuit of data careers is not keeping pace particularly among populations underrepresented in STEM. This project will fulfill a vital need to prepare the future workforce by establishing more pathways that support the transfer of high school students into postsecondary programs.

Hub #: 503

Fortifying Cybersecurity and Computing Education through ATE Grants (FORCCE-ATE)

Primary Institution: Prince George's Community College, MD

Discipline: Information and Security Technologies

Grant Type: ATE Project

The FORCCE-ATE project aims to strengthen and grow the number of cybersecurity and computing technicians throughout the nation. Each year, community college teams of two faculty members, a dean, and a grant writer are accepted through an application process to participate in this team-based professional development and mentoring program. Each team is supported by a seasoned ATE mentor who has been trained with coaching skills. Essential elements include pre-workshop mentee preparation, an in-person workshop, and post-workshop webinars designed to help teams develop competitive ATE proposals.

Hub #: 504

GeoTech Geospatial Resource Center

Primary Institution: Kentucky Community & Technical College System, KY

Discipline: Information and Security Technologies

Grant Type: ATE Center

The GeoTech Center developed a geospatial educational certification program for second and postsecondary faculty. The center has worked with the U.S. Department of Labor to update and revise the Geospatial Technology Competency Model, which has been accepted. In addition, the center offered virtual professional development, including the GeoEd'23 conference, GIS Day, and Earth Observation Day. Two in-person workshops, one on geospatial programming and the other on Modern GIS and DEI were offered. The Modern GIS and DEI event was held in Gettysburg, PA, and utilized the battlefield for field data collection.

Hub #: 505

Geospatial Technical Education: Bridging Classroom to GIS Technician Careers

Primary Institution: Central Wyoming College, WY

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

The GeoBridges program will increase the number of workforce ready technicians in geospatial information science and technology (GIST) via updated curriculum and an engaging interdisciplinary and condensed summer program. During the school year, students participate in classroom based courses. During the summer months, students alternate between classroom education and paid internship and research experiences. Recent student projects include participation in a U.S. Forest Service effort to monitor recreational impacts, cultural resource mapping, and measure change in glaciated environments.

Hub #: 506

Meeting Workforce Needs for Skilled Geospatial Technicians through Virtual Geospatial Information Science Technology Education

Primary Institution: Monroe Community College, NY

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project aims to develop one of the nation's first Associate in Applied Science degree programs in geospatial information technology that is fully accessible both on campus and online. Innovative aspects of the project include customizable in-person and online learning, online internships, online mentoring, and hands-on technical support at the college library and public libraries. In addition to educating new technicians, the project will develop an online nine-credit microcredential focused on topics such as data management, programming, and web mapping.

Hub #: 507

Improving Access and Success in Information Technology Programs through Education-Industry Connections (iCONNECT)

Primary Institution: University of Florida, FL

Secondary Institution: Indian River State College, FL

Discipline: Information and Security Technologies

Grant Type: ATE Project

iCONNECT is an innovative partnership between the University of Florida (UF) Institute of Higher Education and Indian River State College (IRSC) to improve student access and success in community college IT programs of study. Over three years, our team at UF worked collaboratively with faculty and instructional designers at IRSC to redesign five gateway IT courses, strengthen industry connections, improve advising, and create more opportunities to increase interest in IT careers for underrepresented students.

Hub #: 508

Increasing Diversity in the Cybersecurity Talent Pool through Cyber Camps and Competitions

Primary Institution: Contra Costa Community College District, CA

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Bay Cyber League (BayCyber.net) project will address the SF Bay Area's critical need for cybersecurity technicians by increasing the number of high school and community college students pursuing and completing an information technology/ cybersecurity program of study, certificate of achievement and/or an associate degree, from a Bay Area community college. How? By engaging students and their teachers in an innovative year-long cybersecurity competition pathway program that will begin with summer CyberCamps and will continue with year-long activities and competitions to maintain interest.

Hub #: 509

Increasing the Number and Diversity of Cybersecurity Technicians in Rural North Carolina

Primary Institution: Robeson Community College, NC

Discipline: Information and Security Technologies

Grant Type: ATE Project

Robeson Cyber-Connect includes two goals: (1) address the nation's and region's cybersecurity workforce through the shortage of qualified cybersecurity technicians and (2) equip information technology opportunities in gaining specific cybersecurity knowledge and skills to increase effectiveness on course delivery that will optimize student learning and retention.

Hub #: 510

Increasing the Inclusion of Women in the Information Technology and Cybersecurity Skilled Technical Workforce

Primary Institution: Miami Dade College, FL

Discipline: Information and Security Technologies

Grant Type: ATE Project

WomenRISE empowers women to pursue and persist in five targeted high-tech fields of study, including artificial intelligence, cloud computing, cybersecurity, Internet of Things (IoT), and data analytics. Among other activities, WomenRise implements the All Hands on Tech summer program and fosters the Women in Tech Student Organization. Additionally, Women RISE established the Community Alliance for Women in Tech whose mission is to engage, develop, and advance women in technology. With their support, 27 female students were paired with 23 female mentors from the industry during the virtual mentoring program in the first two years of the project.

Hub #: 511

Information Technology Career Pathways through a Flexible Apprenticeship Model

Primary Institution: Columbus State Community College, OH

Secondary Institution: Marion Technical College, OH

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Information Technology Career Pathways through a Flexible Apprenticeship Model will create, pilot, and scale an experiential learning model for students in IT pathways to engage employers by leveraging existing and developing new partnerships with industry and to prepare a pipeline of technicians to meet industry demand by partnering with regional high schools to engage students in high school through IT dual credit option.

Hub #: 512

Increasing the Cloud System Administration Services Workforce through Skills-Based Education and Training

Primary Institution: College of Southern Nevada, NV

Discipline: Information and Security Technologies

Grant Type: ATE Project

The College of Southern Nevada identified a critical need for technicians to be trained to support popular cloud computing systems provided by Amazon Web Services and Microsoft Azure. The purpose of this project is to create a 30-credit certificate and two-year degree program that would prepare students to work on in-demand cloud technologies from Amazon Web Services and Microsoft Azure. A particular goal has been to recruit more women into the IT field via outreach activities including a weeklong cloud summer boot camp working with AWS to provide student certifications.

Hub #: 513

Navigating Students to In-Demand Tech Careers in Secure Mobile Programming in the NYC Region

Primary Institution: CUNY Borough of Manhattan Community College (BMCC), NY

Discipline: Information and Security Technologies

Grant Type: ATE Project

An exponential growth in the use of mobile devices has driven a significant and growing need by corporations to offer their products and services through secure mobile applications. Yet there is a persistent shortage of mobile application development talent in the regional New York City and national U.S. workforce. Our project, led by faculty in the Computer Information Systems Department (CIS) of BMCC, builds on our institution's prior experience with the ATE program. We propose a suite of activities in pursuit of developing talent to create today's mobile applications.

Hub #: 514

Path to Information Technology (IT) Practice: Increasing Credential Completions in IT within the Southern Tier of Virginia

Primary Institution: Southside Virginia Community College, VA

Discipline: Information and Security Technologies

Grant Type: ATE Project

It is well documented that the information technology (IT) workforce is chronically understaffed, and predictions show that the shortage will reach alarming levels in a few years. The goal of this project is to increase the number of students from Southside Virginia Community College, especially those from populations currently underrepresented in IT professions, who are ready to enter the regional IT workforce. The project targets high school students in dual enrollment programs, as well as adult learners, employing a culturally responsive model to increase enrollments and retention.

Hub #: 515

Pilot Program to Prepare Adults who are Deaf or Hard-of-Hearing for Skilled Technical Positions in Information Technology

Primary Institution: Rochester Institute of Technology (RIT), NY

Discipline: Information and Security Technologies

Grant Type: ATE Project

This project, a partnership between the DeafTEC Resource Center and CompTIA, provided a 10-week hands-on boot camp, taught in ASL, offered on the RIT campus for 12 deaf and hard-of-hearing individuals. After completing their training, participants sat for the CompTIA A+ certification exams. Certified participants received direct job placement assistance from CompTIA's career services staff and credit for three courses from NTID's Applied Computer Technology associate degree programs. A Pearson VUE Test Center was established on campus to provide a more accessible testing environment.

Hub #: 516

DeafTEC Center

Primary Institution: Rochester Institute of Technology, NY

Discipline: Information and Security Technologies

Grant Type: ATE Center

DeafTEC: Technological Education Center for Deaf and Hard-of-Hearing Students, a NSF ATE Center, serves as a resource for high schools and community colleges that educate deaf and hard-of-hearing students in STEM-related programs and for employers hiring deaf and hard-of-hearing individuals.

Hub #: 517

Preparing Career Ready Information Technology Technicians

Primary Institution: Chesapeake College, MD

Discipline: Information and Security Technologies

Grant Type: ATE Project

Chesapeake College, located on Maryland's Eastern Shore was awarded a $317K grant. The project focuses on recruiting and retaining students in the AAS in Computer Science Technology degree; increasing female student enrollment and retention; and preparing all students for employment by building a more diverse, career-ready IT workforce. Local companies completed a survey to identify the top four career readiness skills—teamwork, customer service, communication, and professionalism—so that they could be integrated into the program.

Hub #: 518

Preparing Cybersecurity Technicians with the Technical and Entrepreneurial Skills Required to Work as Independent Contractors

Primary Institution: Riverside Community College District, CA

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Cyberpreneurship pathway programs will prepare students with the knowledge and skills to establish their own cybersecurity business/practice. Students will learn what it takes to be an entrepreneur, and establish and run their own business within the cybersecurity space. Students will acquire the knowledge and skills to assist small to medium sized businesses address cybersecurity risks by performing risk assessments, policy evaluation, security awareness training, and solution design along with providing managed services using cybersecurity tools and artificial intelligence to automate response.

Hub #: 519

Preparing High School and Community College Students for the Cybersecurity Workforce

Primary Institution: Pittsburgh Technical College, PA

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Preparing High School and Community College Students for the Cybersecurity Workforce project is addressing the following: (1) increasing the number of applicants to the Information Systems and Technology program by 10% and the number of students from underrepresented groups in the program by 5% over the project period; (2) improving classroom instruction to better prepare students for the local cybersecurity workforce; and (3) introducing cybersecurity educational activities into Pittsburgh-area high schools to better prepare the next generation of cybersecurity professionals.

Hub #: 520

Preparing Students for Cybersecurity Professions Using Real-World Experiences

Primary Institution: Rancho Santiago Community College District, CA

Secondary Institution: Santa Ana College, CA

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

Cybersec First Responder will incorporate strong partnerships with the business community and establish a unique work-

based learning opportunity in partnership with the Info Tech Disaster Response Center, a nonprofit team of volunteer tech professionals, to deliver a technology-immersed cybersecurity technician program that meets the needs of students and employers. The project has two primary goals: (1) prepare highly skilled, job-ready graduates to meet the region's cybersecurity workforce need; and (2) increase enrollment, retention, and completion of female students in the cybersecurity program.

Hub #: 600

Robotic Process Automation Career Training (RPACT)

Primary Institution: College of the Mainland, TX

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

The RPACT project will establish a new career pathway for College of the Mainland students through a workforce program of stackable credentials that support industry-recognized Robotics Process Automation (RPA) tool certifications and offers cooperative work-based learning opportunities. An emerging software technology, RPA allows technicians to configure software robots that run on a personal computer. The robots automate mundane, repetitive business operations which allows workers to direct their attention to more complex tasks that are not candidates for automation.

Hub #: 601

The Hostos Technical Education in Cybersecurity (H-TEC)

Primary Institution: CUNY Hostos Community College, NY

Discipline: Information and Security Technologies

Grant Type: Small New to ATE

Studies indicate a huge gap in the cybersecurity workforce in the United States. This project provides curricular offerings in cybersecurity with imbedded modules to prepare cybersecurity technicians at Hostos Community College. It is hypothesized that the development of an online state-of-the-art program with experiential learning with industry standards, and law enforcement compliance is a novel approach to enhance underrepresented students' readiness for careers in cybersecurity. The project aims to participate in the effective training of cybersecurity technicians at a Hispanic Serving Institution.

Hub #: 602

Using Cloud Technologies to Develop the Data Analysis Skills of Community College Students

Primary Institution: CUNY Queensborough Community College, NY

Discipline: Information and Security Technologies

Grant Type: ATE Project

The project goal is to improve the knowledge and skills of students at an urban community college to build a pipeline of technicians in the areas of big data analytics, cloud computing, and biomedical and health informatics. A summer boot camp syllabus was developed with the support of the Business and Industry Leadership Team. Recruitment focused on students from underserved communities. Additionally, the program offers professional development opportunities for faculty and students. Supplemental funding supports undergraduate research experiences for summer boot camp graduates.

Hub #: 603

A Collaborative Cybersecurity Analysis Certification Program

Primary Institution: Southern West Virginia Community College, WV

Discipline: Information and Security Technologies

Grant Type: ATE Project

The Collaborative Research: Cybersecurity Analysts – Addressing Industry Shortages and Demands for Cyber Specialists project will create an educational pipeline for the critically needed cybersecurity workforce. Three West Virginia institutions—two public community and technical colleges and a private four-year university—will launch a four-course, two-semester Security Analysis (SA) certificate program, targeted at high school students in West Virginia's rural, economically depressed counties and veteran and/or military-connected adult learners both regionally and nationally.

Hub #: 604

A Collaborative Cybersecurity Analysis Certification Program

Primary Institution: Shoreline Community College, WA

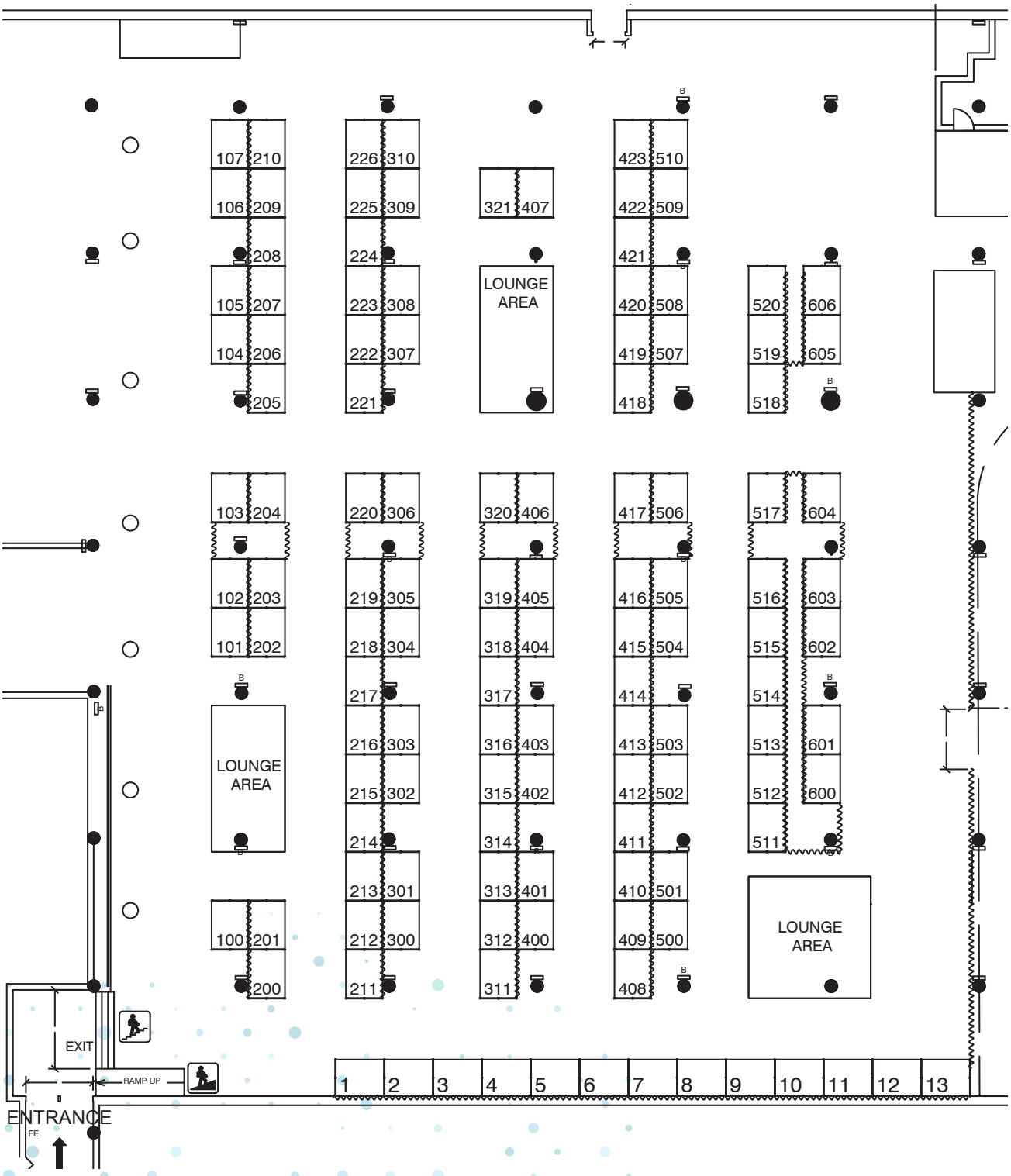
Discipline: Bio and Chemical Technologies

Grant Type: ATE Project

Shoreline Community College proposes to develop a cell/immunotherapy hub, with the goal of increasing the number of skilled biomanufacturing technicians in this sector. The project has three goals: (1) develop comprehensive national labor market and skills-gap analysis of cell/immunotherapy technicians; (2) develop best practices for outreach to include people from underrepresented groups and high school students in these careers; and (3) become a knowledge source and catalyst for other community colleges to develop cell/immunotherapy technician education programs and curriculum.

ATE CONNECTS – SESSION II

ATE CONNECTS – CONVERSATION HUB MAP
THURSDAY, OCTOBER 26, 2023
EXHIBIT HALL



ATE CONNECTS SESSION II

THURSDAY, OCTOBER 26 | 3:45 – 5:30 P.M. | EXHIBIT HALL

ADVANCED MANUFACTURING TECHNOLOGIES, APPLIED RESEARCH IN TECHNICIAN EDUCATION, ENGINEERING TECHNOLOGIES, AND MICRO & NANOTECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
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American Society For Engineering Education (ASEE), DC	Dissemination of ASEE Industry 4.0 Webinars and Summit Findings	013
American Society For Engineering Education (ASEE), DC	Profiles of Technical Workforce Programs and Students at Two-Year Colleges	012
Arapahoe Community College, CO	Training for Mechatronics Engineering Technicians in Colorado	513
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Bridgerland Technical College, UT	Teaching Technician Troubleshooting with Mini Industry 4.0 Factories	317
Central Community College, NE	Developing Educational Pathways to Credentials in Plastics Engineering Technology	214
Central Oregon Community College, OR	NEVTEX Next	404
Central Virginia Community College, VA	Improving Advanced Manufacturing Technician Education Using Industry Partnerships	222
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Columbus State Community College, OH	Expanding the Engineering Technician Pipeline for Industry 4.0	507
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Erie Community College, NY	Developing an E-Book and Other Interactive Instructional Materials for Technician Education in Vacuum Technology	603
Florida State College at Jacksonville, FL	Creating New Aerospace Technician Pathways Using Space Materials Design and Fabrication Skills Training	204

ATE CONNECTS SESSION II

THURSDAY, OCTOBER 26 | 3:45 – 5:30 P.M. | EXHIBIT HALL

ADVANCED MANUFACTURING TECHNOLOGIES, APPLIED RESEARCH IN TECHNICIAN EDUCATION, ENGINEERING TECHNOLOGIES, AND MICRO & NANOTECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Florida State College at Jacksonville, FL	Educating Advanced Driver Assistance Systems Technicians	411
Florida State College at Jacksonville, FL	Enhancing Aviation Maintenance Technician Training with Nondestructive Testing Skills	423
Florida State College at Jacksonville, FL	Improving Technician Training in Automation Technologies for Advanced Manufacturing	301
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FloridaMakes, Inc., FL	Industry 4.0 Skills for Manufacturing Technicians: Adjusting Engineering Technology Programs to Respond to Industry Identified Skills	306
Foothill-De Anza Community College District, CA	Manufacturing Automation and Additive Design Excellence (MAADE)	308
George C. Wallace State Community College, AL	Developing and Implementing Hybrid Instruction to Increase the Access of Women and Adult Learners to Diesel Technology Training	402
Heartland Community College, IL	Improving Industrial Technology Education with Flexible Learning Options and Student Support Services	225
Hofstra University, NY	Targeted Research to Identify Mathematics Competencies and Align Mathematics Education for Skilled Technicians in Advanced Manufacturing	002
Hudson County Community College, NJ	Strengthening Community College and Workforce Partnerships in Construction Management	517
Hudson Valley Community College, NY	A Comprehensive Approach for Preparing Community College Career Programs to Support the Vehicle to Grid Transition	406
Impact Allies Inc., FL	Grant Insights through Research & Development (GIRD): Using Big Data Centered Mixed Methods to Explain Variances in Grant Funding and Outcomes at Two-Year Colleges	008
Indian River State College, FL	Hybrid Curriculum for Upskilling Photonics Technicians in Advanced Optics and Quantum Research Enabled Technologies	508
Indian River State College, FL	National Electric Vehicle Consortium (NEVC)	403
Indian River State College, FL	Resource Center for Laser, Photonics, and Fiber Optics Education (LASER-TEC)	511
Ivy Tech Community College of Indiana, IN	Collaborative Research: Developing Business Communication Skills in Manufacturing Technician Education	202
Johnson College, PA	Flying High for New Careers in Aviation Technology	220

ATE CONNECTS SESSION II

THURSDAY, OCTOBER 26 | 3:45 – 5:30 P.M. | EXHIBIT HALL

ADVANCED MANUFACTURING TECHNOLOGIES, APPLIED RESEARCH IN TECHNICIAN EDUCATION, ENGINEERING TECHNOLOGIES, AND MICRO & NANOTECHNOLOGIES

ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Kentucky Community & Technical College System, KY	Advanced Manufacturing: Girls Can, Too	104
Kentucky Community & Technical College System, KY	Establishing Veteran Career Training for Advanced Manufacturing Careers	219
Kentucky Community & Technical College System, KY	Improving Technician Skills in Advanced Manufacturing with a Low-Cost Virtual Reality Platform	300
Kentucky Community & Technical College System, KY	Mobile Additive Manufacturing Platform for 21st Century STEM Workforce Enhancement	309
Lake Washington Institute of Technology, WA	Creation and Modernization of Technological Education in Electronics and Welding through Open Educational Resources that are Free to Share, Use, and Revise	207
Lake-Sumter State College, FL	Multiple Academic Pathways for Mechatronics Technicians	310
Lorain County Community College, OH	Enhancing Welding Technician Education through the Transition of the National Center for Welding Education to a Resource Center	218
Lorain County Community College, OH	Industry 4.0 Curriculum Development and Occupation-Based Learning Outcomes In Automation	307
Los Angeles Pierce College, CA	Improving Student Career Readiness through Experiential Learning and Internships	509
Macomb Community College, MI	Automotive Technician Education on Electrified, Automated, and Connected Vehicles	407
Maricopa County Community College District, AZ	Supporting Micro and Nano Technicians through Hybrid Teaching Methods	606
Marine Technology Society, DC	Increasing Community College Participation in the Marine Advanced Technology Education's Remotely Operated Vehicle Competition	418
Marion Technical College, OH	Bridging the Skills Gap in Smart Manufacturing through a New Technician Education Program	200
Marion Technical College, OH	Incorporating Virtual Reality into Advanced Manufacturing Technician Education at a Rural Community College	303
Miami Dade College, FL	Broadening Participation in the Automation Technician Workforce	422
Michigan State University, MI	Enhancing Design and Construction Technology Education through the Context of Mass Timber	516
Milwaukee Area Technical College, WI	Access to Careers in Advanced Building Technology (ACABT)	515
Minnesota Riverland Technical College, MN	Educating Autonomous Vehicle Technicians	409

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ATE Conversation Hubs Alpha by Primary Institution	Grant Title	Hub #
Minnesota State College - Southeast Technical, MN	Rural Electronics Education Hub Pilot in the Upper Mississippi River Basin	510
Minnesota State Community & Technical College, MN	Amping Up Today's Electric Drive Automotive Education: Advanced Modules in Powered Electric Drive (AMPED) Technology Certification	408
Montcalm Community College, MI	Building Automation Technology Maintenance and Networks	201
Mount San Antonio College, CA	Developing Pathways to Engineering Technology Careers	503
Mountain View College, TX	Bridging the Instruction-Industry Divide: Multidisciplinary Approaches to 3D Technology Education and the Future of 3D Technology Certification	107
Mountwest Community & Technical College, WV	ATE Advanced Aerospace Welding (AAW)	106
National Science Foundation		001
New York University, NY	Technician Training for Advanced Manufacturing and Materials	321
Normandale Community College, MN	Flexible Technology Education to Upskill/Reskill for a Vacuum Technician Career	602
North Carolina State University, NC	The Robotics/Automation and Cybersecurity Knowledge Sharing Coordination Network (TRACKS-CN)	319
North Iowa Area Community College, IA	Advancing NextGen Technicians: Addressing New Industry Demand for Robotics Because of COVID-19	105
Northcentral Technical College, WI	Retooling a Machine Tool Technician Program in North Central Wisconsin to Support Diversity, Flexibility, and Accessibility	314
Northeast State Technical Community College, TN	Integrating Electric Vehicle Technology in Legacy Automotive Programs	412
Northern Virginia Community College, VA	Data Center Operations Program Development: A National Approach to Improving Capacity for Data Center Education	500
Northern Virginia Community College, VA	Expanding Regional Capacity for Training in Engineering Technology and Data Center Operations	501
Northern Virginia Community College, VA	Product Design Incubator: Fostering an Entrepreneurial Mindset through Interdisciplinary Product Design	519
Northern Virginia Community College, VA	Supporting Instructors to Embed Design Thinking in Digital Fabrication Courses	316
Northland Community & Technical College, MN	National Center for Autonomous Technologies	417

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NorthWest Arkansas Community College, AR	Applied Design Thinking for Product Development Technicians (ADTPDT)	419
Northwest State Community College, OH	Cybersecurity Education for Advanced Manufacturing Organizations	208
Northwest State Community College, OH	Improving Advanced Manufacturing Courses by Implementing CBE Instructional Elements	221
Northwestern Connecticut Community College, CT	Engaging Students from Classrooms and Camps to College and Advanced Technological Careers	401
Owensboro Community and Technical College, KY	Improving Technician Training in Industry 4.0 Technologies Using Competency-Based Education	302
Owensboro Community and Technical College, KY	Strengthening the Industry 4.0 Workforce through Virtual Reality Training Modules	315
Ozarks Technical Community College, MO	Developing an Automation & Robotics Technician Training Program and Pathway	211
Pasadena City College, CA	The Micro Nano Technology Education Center (MNT-EC)	600
Pennsylvania College of Technology, PA	A Collaborative Approach to Expanding Nondestructive Testing Education within a Welding Program	102
Pennsylvania State University, PA	Microelectronics and Nanomanufacturing Partnership for Veterans	605
Piedmont Virginia Community College, VA	Improving Students' Advanced Manufacturing Skills with Mastery Learning	226
Pittsburgh Technical Institute, PA	Integrating Software and Machine-Lab Instruction	304
Pittsburgh Technical Institute, PA	Recruitment and Training Support for Diverse Populations in Mechanical and Architectural Manufacturing Technologies (RTS-MT)	305
Portland Community College, OR	Expanding Geographic Information Science Technology Education	506
Quinsigamond Community College, MA	Designing and Implementing an Industry-Aligned Robotics Technician Certificate Program	209
Regents of the University of Michigan - Ann Arbor, MI	Collaborative Research: Improving the Educational Experiences, Outcomes, and Career Pathways of Welding Technology Students	005
Rio Hondo College, CA	Providing Opportunities for Women in Next Generation Electric Vehicle Technologies	414
River Parishes Community College, LA	Advanced Industrial Instrumentation Control Technician Education	103
Rochester Institute of Technology, NY	Improving and Modernizing Machinist Training and Education for Machining Workforce Preparation in the Finger Lakes Region of New York	223

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Rutgers University, NJ	Pathways into Careers in Information Technology: Community College Student Decision-Making about Academic Programs and Jobs	007
Rutgers University, NJ	The Hidden Innovation Infrastructure: Understanding the Economic Development Role of Technician Education in the Changing Future of Work	006
San Mateo County Community College District, CA	SkyBayTech: Meeting the Bay Area's Electronics Technician Workforce Need	512
Santa Barbara City College, CA	A California Central-Coast Partnership for Industry-Focused Micro/ Nanotechnology Education	604
Santa Fe College, FL	Guitar, Robotics, Rocketry ATE (GRRATE) Summer Institutes	416
Sinclair Community College, OH	Automotive Technician Training for Electric Vehicles	410
South Central College, MN	Enhancing the Independent Mechatronics Technical Curriculum and Creating a New Pathway from Rural High Schools into Mechatronics Careers	217
Southern University at Shreveport, LA	Building a Career Pathway from High School into the Workforce for Skilled Technicians in Electrical, Industrial, and Process Engineering Technology	502
Southwestern College, CA	Expanding Educational Opportunities for Secondary and Postsecondary Educators and Students in the Technology and Applications of Unmanned Aircraft Systems	421
SRI International, CA	A Research Collaborative to Build Employability Skills for STEM Technology Fields	010
St. Charles Community College, MO	Creating Technician Pathways in Mechatronics for the Industry 4.0 Workforce	206
St. Cloud State University, MN	Resource Collaborative for Immersive Technologies (RECITE)	420
Stark State College of Technology, OH	Preparing Robotics Technicians for Industry 4.0	311
State Fair Community College, MO	Developing New Academic Pathways for the Advanced Manufacturing Technician Workforce	215
Suffolk Community College, NY	Electronics and Engineering Technician Training in High Technology for the 21st Century	504
SUNY Buffalo State University, NY	Extending the EvaluateUR Method to Expand the Community of Users	003
SUNY Polytechnic Institute, NY	Northeast Consortia for Advanced Integrated Silicon Technologies (NCAIST)	520
Terra State Community College, OH	Creating Relevant, Effective, and Accessible Technical Education for Electrical Skilled Trades	205
Texas A&M Engineering Experiment Station, TX	Technician Training for Industry 4.0 Technologies	318

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Trident Technical College, SC	Collaborative Research: Revolutionizing Electric Vehicle Education	405
Tulsa Community College, OK	Developing an Industrial Maintenance Technician Pathway to an Advanced Technology Degree	212
University of California-Berkeley, CA	Building Efficiency for a Sustainable Tomorrow (BEST) Center	518
University of New Mexico, NM	Support Center for Microsystems Education (SCME)	601
University of South Florida, FL	PathTech LISTEN: Mixed Methods Longitudinal Investigations of Students in Technician Education	004
University of Tennessee Chattanooga, TN	Collaborative Research: Preparing the Workforce for Industry 4.0's Intelligent Industrial Robotics	203
University of Wisconsin-Madison, WI	Crisis as Catalyst for Change and Innovation: Targeted Research on Institutional Response and Enduring Impacts on Advanced Technological Education	011
Vaughn College of Aeronautics and Technology, NY	Developing PLC and Robotic Automation Technician Training for Service Industries	216
Virginia Space Grant Consortium, VA	GeoTEd-UAS: Improving Pathways into the Geospatial and Unmanned Aircraft Systems Technician Workforce	505
Wake Technical Community College, NC	Preparing Students for the Industry 4.0 Technician Workforce	313
Wake Technical Community College, NC	Training Building Automation Technicians (BAT): A New Program	514
Westchester Community College, NY	Collaborative Research: HSI ATE Hub 2 – Professional Development for Culturally Responsive Technician Education	009

ATE CONNECTS SESSION II – ABSTRACTS

THURSDAY, OCTOBER 26 | 3:45 – 5:30 P.M. | EXHIBIT HALL

ATE CONVERSATION HUBS

Hub #: 001

National Science Foundation

The National Science Foundation propels the nation forward by advancing fundamental research in all fields of science and engineering. NSF supports research and people by providing facilities, instruments, and funding to support their ingenuity and sustain the U.S. as a global leader in research and innovation. With a fiscal year 2023 budget of $9.5 billion, NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities, and institutions. Each year, NSF receives more than 40,000 competitive proposals and makes about 11,000 new awards. Those awards include support for cooperative research with industry, Arctic and Antarctic research and operations, and U.S. participation in international scientific efforts.

Hub #: 002

Targeted Research to Identify Mathematics Competencies and Align Mathematics Education for Skilled Technicians in Advanced Manufacturing

Primary Institution: Hofstra University, NY

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

Needed Math is a three-year Targeted Research project to improve alignment of the mathematics taught in two-year technical programs with the mathematics manufacturing technicians use in the workplace. We will report on and discuss recent survey data that compares perceptions of manufacturing industrialists, manufacturing educators, and mathematics instructors about the importance of industry-vetted math competencies, and the sense of preparedness that the three survey subgroups believe technicians have. Mathematics instructors' perceptions differ from technicians and technical educators.

Hub #: 003

Extending the EvaluateUR Method to Expand the Community of Users

Primary Institution: SUNY Buffalo State University, NY

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

This project intends to increase the number of students who utilize the EvaluateUR method by developing, pilot testing, evaluating and disseminating: a student scored version for community college students conducting research at a university or other research laboratory; a variant for students participating in government, business or industry internships; a version for shorter duration course-based research experiences; a no-cost version for faculty mentoring up to three students in summer or academic year research; and an online forum for users to pose questions and share best practices.

Hub #: 004

PathTech LISTEN: Mixed Methods Longitudinal Investigations of Students in Technician Education

Primary Institution: University of South Florida, FL

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

PathTech LISTEN (DUE #1801163) conducted two waves of in-depth interviews to track short-term educational and career outcomes of community college alumni in advanced manufacturing, engineering technology, micro and nano technologies, and energy and environmental technologies from a national survey (N = 3,216) conducted in 2017/2018. Among interviewees, 64% worked full-time, only two outside their field; and 26% enrolled in four-year STEM programs including three graduate students. An ongoing pilot longitudinal survey tracks participant changes in enrollment and employment since 2017.

Hub #: 005

Collaborative Research: Improving the Educational Experiences, Outcomes, and Career Pathways of Welding Technology Students

Primary Institution: Regents of the University of Michigan–Ann Arbor, MI

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

This ATE project is a collaboration between researchers, technician educators, and welding industry employers and professionals in Southeast Michigan to identify factors that contribute to matriculation and a lack of program completion in welding technology. The major goal of the project is to understand the educational experiences, outcomes, and career pathways of welding technology students to improve their experience and to increase enrollment in welding programs to ensure the continued growth of technically skilled workers.

Hub #: 006

The Hidden Innovation Infrastructure: Understanding the Economic Development Role of Technician Education in the Changing Future of Work

Primary Institution: Rutgers University, NJ

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

This research project has a multi-faceted approach to conceptualizing and examining

the economic development role of community college technician education and the ATE program in the context of the changing nature of work. It seeks to define the impact of the technician workforce, as developed by these technician education programs supported by ATE, on businesses reflecting innovation, productivity, expansion, and regional economies. The research has three components: analysis of technician programs and regional economic development; review of ATE activity; and analysis of technicians at work.

Hub #: 007

Pathways into Careers in Information Technology: Community College Student Decision-Making about Academic Programs and Jobs

Primary Institution: Rutgers University, NJ

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

Through a partnership between the EERC and Ivy Tech, this targeted research explores community college student decision making around information technology (IT) programs and careers. It aims to explore the determinants, influences, decision-making styles, and turning points that students consider as they navigate community college IT pathways. Through analysis of surveys and interviews with students, faculty, and staff at Ivy Tech, this research seeks to deepen understanding of how students make decisions about education and careers in IT programs and in community colleges more generally.

Hub #: 008

Grant Insights through Research & Development (GIRD): Using Big Data Centered Mixed Methods to Explain Variances in Grant Funding and Outcomes at Two-Year Colleges

Primary Institution: Impact Allies Inc., FL

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

The research aims to understand the underlying reasons for varying grant funding at two-year colleges (2YCs). The major goal of this work is to statistically map 2YCs to identify similar schools through cluster algorithms and identify factors within clusters associated with variance in grant funding. The secondary goals are to create and test an automated process to help 2YCs identify and implement success factors to strengthen their grant ecosystems and guide institutional investments, and share how to use artificial intelligence (AI) tools to broaden participation in the ATE community.

Hub #: 009

Collaborative Research: HSI ATE Hub 2 – Professional Development for Culturally Responsive Technician Education

Primary Institution: Westchester Community College, NY

Discipline: Applied Research

Grant Type: ATE Project

Culturally responsive instruction supports a transformative shift in faculty understanding, practice, and mindset about students' diverse cultural and ethnic backgrounds that is evidence-based and student serving, focused on building on students' STEM strengths and motivations, rather than deficits. This project addresses the loss of diversity from the STEM pipeline and the desire of faculty, industry, and NSF to broaden participation in STEM technician education. This project also addresses faculty development in the area of culturally relevant instruction.

Hub #: 010

A Research Collaborative to Build Employability Skills for STEM Technology Fields

Primary Institution: SRI International, CA

Secondary Institution: Evergreen Valley College, CA

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

Project GOALS (Greater Opportunities to Advance Lifelong Success) is a researcher-practitioner partnership between SRI International and Evergreen Valley College in East San Jose, CA. Focusing on STEM career technical education programs, the team has co-developed and pilot-tested classroom strategies to build students' employability skills. Strategies include raising student awareness of employers' expectations, embedding role-playing and reflection activities in course labs, and providing ways for students to use their insights for job interviews and resumes.

Hub #: 011

Crisis as Catalyst for Change and Innovation: Targeted Research on Institutional Response and Enduring Impacts on Advanced Technological Education

Primary Institution: University of Wisconsin-Madison, WI

Discipline: Applied Research

Grant Type: Applied Research in Technician Education

Using mixed methods, such as text mining, survey research, and interviews with key stakeholders, we are identifying key patterns in innovation and best practices; and pinpointing adaptations that colleges should hold on to as they navigate their new landscapes post-pandemic. We uncovered themes of access, flexibility, and agility underlying adaptations, with a commitment by colleges to support students holistically. We also caution of a critical need to address faculty and staff development and support, and to sustain diversity, equity, and inclusion (DEI) efforts.

Hub #: 012

Profiles of Technical Workforce Programs and Students at Two-Year Colleges

Primary Institution: American Society For Engineering Education (ASEE), DC

Discipline: Applied Research

Grant Type: ATE Project

The value of the Data Collection for Technician Programs is based on the experience of ASEE from the value generated for stakeholders in the similar data that it collects on engineering programs at four-year institutions. Institutions that participate in this project survey will receive access to the ASEE-developed Engineering Data Management System (EDMS), an interactive dashboard that institutions can use for accreditation purposes, program development activities, and proposal development for NSF ATE programs and other federal and state grant opportunities and data reporting purpose.

Hub #: 013

Dissemination of ASEE Industry 4.0 Webinars and Summit Findings

Primary Institution: American Society For Engineering Education (ASEE), DC

Discipline: Engineering Technologies

Grant Type: ATE Project

Between 2020 and 2022, the Industry 4.0 Workforce Summit convened thought leaders and practitioners in education, industry and the policy sphere to build consensus on how to drive necessary change in the education and training of skilled and professional workers for Industry 4.0. This project identifies the best practices and lighthouse examples from that effort and disseminates the key findings in order to expand and strengthen the communities needed to build a future-ready workforce and catalyze ongoing collaboration among the policy, education and business communities.

Hub #: 100

National Center for Next Generation Manufacturing

Primary Institution: Education Connection, CT

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Center

The National Center for Next Generation Manufacturing facilitates the identification and dissemination of the knowledge, skills, and abilities required to support advanced manufacturing workforce needs in the U.S. through a national network of manufacturing stakeholders. The center provides opportunities for educators, students, and parents to learn about advanced manufacturing and Industry 4.0 technologies and careers through educational materials, professional development opportunities, and hands-on activities that have been researched and developed by its national partners.

Hub #: 101

The Center for Aviation and Automotive Technological Education Using E-Learning: Providing E-Learning Resources and Increasing Knowledge about their Effectiveness

Primary Institution: Clemson University, SC

Secondary Institution: Greenville Technical College, SC

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Center

The Center for Aviation and Automotive Technological Education Using Virtual E-Schools, or "CA2VES," provides research-centered resources and evidence-based leadership for community colleges and the broader ATE community by designing and developing state-of-the-art virtual reality-based modules that support automotive and aviation technician education. For this session, we will highlight our work with Greenville Technical College, Southern Illinois University, Utah Valley University, and the Aviation Technician Education Council to develop supplemental digital learning tools to support aircraft maintenance.

Hub #: 102

A Collaborative Approach to Expanding Nondestructive Testing Education within a Welding Program

Primary Institution: Pennsylvania College of Technology, PA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project aims to meet the growing need for skilled non-destructive testing technicians in industry by: (1) developing short-term certificates in radiographic testing (RT) and ultrasonic testing (UT) methods; (2) developing a new AAS that includes a strong welding foundation combined with RT and UT methods; (3) acquiring technology to teach and practice digital RT methods; and (4) ensuring all coursework meets the American Society for Non-destructive Testing requirements, which will enable graduates to earn industry recognized credentials.

Hub #: 103

Advanced Industrial Instrumentation Control Technician Education

Primary Institution: River Parishes Community College, LA

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

This project will contribute to the development of a skilled technical workforce by improving an Industrial Instrumentation degree program. The improved curriculum will include training in advanced automation control and troubleshooting skills in chemical manufacturing control systems. The degree will emphasize the Industrial Internet of Things (IIoT) operational model, Industry 4.0 troubleshooting methods, and modern Human Machine Interface.

Hub #: 104

Advanced Manufacturing: Girls Can, Too

Primary Institution: Kentucky Community & Technical College System, KY

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Kentucky faces a skilled technical worker shortage that must be addressed if the state is to advance its manufacturing base. Blue Grass Community and Technical College's Girls Can Too Project will address this problem by educating, recruiting, and mentoring 80 middle and high school girls into careers relating to industrial maintenance technology (IMT), a key technical field that supplies highly skilled technicians who install, maintain, and repair industrial systems equipment. Our main goal is to increase the number of girls taking dual credit classes related to IMT.

Hub #: 105

Advancing NextGen Technicians: Addressing New Industry Demand for Robotics Because of COVID-19

Primary Institution: North Iowa Area Community College, IA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The Advancing NextGen Technicians project at North Iowa Area Community College is designed to increase the number of industrial technicians in the North Iowa workforce who have intermediate-level training in equipment and instrumentation that is directly relevant to industry's needs. Through the new Applied Industrial Robotics course, students are introduced to various robots and their capabilities, including palletizing, to help meet industry needs. Our student passing percentage for the NC3 Festo Fundamentals of Robotics exam is 87%, and the NC3 Festo Applied Robotics pass rate is 100%.

Hub #: 106

ATE Advanced Aerospace Welding (AAW)

Primary Institution: Mountwest Community & Technical College, WV

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Supporting an emerging aerospace industry in southeastern WV, Mountwest and Marshall are expanding a welding program to support skillsets in aerospace. New courses will feature flexible modules including both virtual and hands-on experiences to provide advanced welding concepts to aerospace maintenance and other advanced alloy applications. Curriculum redesign will feature stackable credentials and career pathways from K-12 to advanced skillset beyond an associate degree.

Hub #: 107

Bridging the Instruction-Industry Divide: Multidisciplinary Approaches to 3D Technology Education and the Future of 3D Technology Certification

Primary Institution: Mountain View College, TX

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

For the last decades, we have seen rapid advances and democratization of 3D technologies. In parallel to the development of 3D hardware and software, the application areas are becoming more diversified. In-depth knowledge and experiences of each technology and creativity to integrate multiple 3D technologies will become critical to maintaining competency in many industries. We research realistic educational frameworks to teach 3D technology for future engineers, and others. The options include modification of a set of lessons and the development of a new certificate.

Hub #: 200

Bridging the Skills Gap in Smart Manufacturing through a New Technician Education Program

Primary Institution: Marion Technical College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Marion Technical College, in collaboration with industry and education partners, has developed a Smart Manufacturing Technology earn and learn program to increase the supply of qualified technicians in this area. The program is equipped with a variety of experiential learning opportunities and four additional industry-recognized certifications are embedded within specific courses. Summer camps to expose middle and high school students to Smart Manufacturing as well as professional development events for high school instructors have been delivered as part of the grant activities.

Hub #: 201

Building Automation Technology Maintenance and Networks

Primary Institution: Montcalm Community College, MI

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project seeks to create training in sustainable systems for data and production controls within HVAC and advanced manufacturing. Plans are to update existing curriculum, offer workplace-based learning opportunities, and branch into other curriculum areas.

Hub #: 202

Collaborative Research: Developing Business Communication Skills in Manufacturing Technician Education

Primary Institution: Ivy Tech Community College of Indiana, IN

Secondary Institution: Purdue University, IN

Discipline: Advanced Manufacturing Technologies

Grant Type: Applied Research

The collaboration goals included developing and testing an adaptive virtual reality (VR) business communication skills education program for manufacturing technician students. VR scenarios have been developed and are being tested. A one-day interdisciplinary workshop for enhancing curriculum and educational materials has been conducted. Faculty composed new case studies focusing on business communications skills in a manufacturing context to be compiled and published. Faculty externships have been created and conducted and reviews are currently being written by participating faculty.

Hub #: 203

Collaborative Research: Preparing the Workforce for Industry 4.0's Intelligent Industrial Robotics

Primary Institution: University of Tennessee Chattanooga, TN

Secondary Institution: Chattanooga State Community College, TN

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

According to the International Federation of Robotics, nearly 75% of the global market for next-generation industrial robotics is in China, Japan, Korea, and Taiwan. To remain competitive, U.S. industries need to rapidly accelerate the use of intelligent robotics. This collaborative project addresses the nation's shortfall of qualified technicians in intelligent industrial robotics. The project's goals include: (1) develop curricular modules; (2) implement workshops for educators; (3) identify skill sets needed for handling intelligent robotics; and (4) develop a knowledge base for the technology.

Hub #: 204

Creating New Aerospace Technician Pathways Using Space Materials Design and Fabrication Skills Training

Primary Institution: Florida State College at Jacksonville (FSCJ), FL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

In this project, students receive training in techniques used to fabricate space materials, such as injection molding, 3D printing, and computer numerical control (CNC) programming. The project will increase FSCJ's capacity to educate regional college students and incumbent workers through (1) developing a curriculum for an Advanced Materials Design in Manufacturing track within the FSCJ Engineering Technology associate degree program; (2) establishing a Space Materials Manufacturing Laboratory with equipment for students to practice applied skills; and (3) promoting career awareness and hands-on exposure to the space materials manufacturing industry among middle and high school students and K-12 teachers.

Hub #: 205

Creating Relevant, Effective, and Accessible Technical Education for Electrical Skilled Trades

Primary Institution: Terra State Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project will revitalize three automation courses (PLC1, PLC2, and Electrical Systems Troubleshooting) from a conventional scheme to a competency-based/hybrid instructional format. The curriculum will align to the needs of regional manufacturers using the BILT model and include ongoing professional development of faculty on the hybrid/flipped classroom model of course delivery. Key skills include: finding and reusing OER, creating instructional learning objects (videos, PPT/PDFs, and simulations), how to move the lectures online, creating hands-on lab exercises, and designing performance assessments.

Hub #: 206

Creating Technician Pathways in Mechatronics for the Industry 4.0 Workforce

Primary Institution: St. Charles Community College (SCC), MO

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The MegaTech project addresses a regional need for technicians with multidisciplinary Industry 4.0 skillsets in advanced manufacturing/automation systems, industrial maintenance, and applied engineering/integrated technology sectors. Technologies are rapidly transforming these industries, which increasingly rely on computers, data, robotics, and 3D technologies. This transformation stretches across industrial sectors creating needs for multidisciplinary skills. SCC's program will fill worker pipeline gaps by preparing technicians to meet the industry-identified employment needs.

Hub #: 207

Creation and Modernization of Technological Education in Electronics and Welding through Open Educational Resources that are Free to Share, Use, and Revise

Primary Institution: Lake Washington Institute of Technology, WA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project will redesign instruction to better train a diverse group of students to meet critical workforce demands in the areas of electronics and welding. The redesign will transition all course materials for six courses to Open Educational Resources (OER). OER can be retained, reused, redistributed,

revised, or remixed without having to ask for permission from their creator. As a result, their content is dynamic and free of cost. Although OER are common for general education, the highly technical fields of manufacturing technology have not widely transitioned to use of OER.

Hub #: 208

Cybersecurity Education for Advanced Manufacturing Organizations

Primary Institution: Northwest State Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Advanced manufacturing organizations have historically suffered from poor cybersecurity defenses. Some of the reason for this is a lack of security awareness among the engineering technicians responsible for day-to-day operations. In addition, information technology personnel who have security knowledge are not aware of the unique challenges posed by advanced manufacturing technology. This project has developed a virtual Industrial Control System (ICS) that works with freely available cybersecurity training scenarios designed to teach cybersecurity principles using manufacturing technology.

Hub #: 209

Designing and Implementing an Industry-Aligned Robotics Technician Certificate Program

Primary Institution: Quinsigamond Community College, MA

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Our project is a three-year SPARC initiative to create a robotics technician educational pathway that attracts students with a demonstrated interest in hands-on robotics and engages them in a formal college credit certificate program. The new certificate program will integrate industry-recognized certifications and can be subsequently integrated into the development of a Robotics Technician associate's degree. The initiative will also leverage a network of ATE projects and centers to facilitate wide dissemination and further testing of the model within different regions of the country.

Hub #: 210

Developing a Flipped Classroom Approach to Enhance Access and Improve Learning in Electro-Mechanical Technology

Primary Institution: Columbia Gorge Community College, OR

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Columbia Gorge Community College's Electro-Mechanical Technology program is producing a series of free online lectures designed to support the flipped classroom approach to teaching technical subjects. A flipped classroom delivers instruction outside the classroom via online instructional modules and activity-based learning inside a hands-on lab environment with the guidance of an instructor. Students view the lectures at the time and place of their choosing and can be paused and reviewed. Stop by to learn how to access these lectures and discuss best practices in deploying them.

Hub #: 211

Developing an Automation & Robotics Technician Training Program and Pathway

Primary Institution: Ozarks Technical Community College, MO

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Ozarks Technical Community College (OTC) is developing an automation and robotics technician training program while simultaneously creating a K-12 career pathway to cultivate interest in manufacturing trades among youth. Through this comprehensive approach, the program seeks to capture the enthusiasm of young individuals who are exposed to automation and robotics during tours, summer camps, and other engagement activities. This initial spark of interest can then be nurtured as students pursue their degrees at OTC, ultimately preparing them for high demand positions with local employers.

Hub #: 212

Developing an Industrial Maintenance Technician Pathway to an Advanced Technology Degree

Primary Institution: Tulsa Community College, OK

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

The Oklahoma Employment Security Commission predicts a 7.5% annual growth in mechanical engineering technician jobs and a 10% annual growth in industrial machinery mechanic jobs. We developed the Industrial Maintenance Technician pathway to prepare engineering technicians who have electromechanical experience. A Business and Industry Leadership Team (BILT) was also developed from all industries of electronics and manufacturing.

Hub #: 213

Developing Automation and Manufacturing Technicians in North Dakota

Primary Institution: Bismarck State College, ND

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

With NSF support, Bismarck State College will address the demand for technician education for automation and manufacturing by developing five new courses that will build upon the foundational courses of our Energy Services and Renewable Technician program, leading to an AAS in Automation and Manufacturing Technician. In addition, our project will target underrepresented populations from rural Western North Dakota, with emphasis on women and rural populations in these high-wage, high-skill careers.

Hub #: 214

Developing Educational Pathways to Credentials in Plastics Engineering Technology

Primary Institution: Central Community College (CCC), NE

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Central Community College's PRIME project (Plastics-Related, Innovative Manufacturing Education) seeks to recruit, educate, and develop current and future technicians for careers in the field of plastic injection molding. Injection molding technicians are in high demand. Working closely with industry, CCC and the PRIME project work to help students develop a scientific understanding of the molding process. Our program allows students, in a relatively short time, to gain knowledge and skills that pave the way to very good paying jobs without burdensome time and financial commitments.

Hub #: 215

Developing New Academic Pathways for the Advanced Manufacturing Technician Workforce

Primary Institution: State Fair Community College, MO

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project is focused on creating new advanced manufacturing pathways through integration of existing machining, electrical, and engineering design degree programs to better equip students to enter the workforce with a more diverse skillset. Our grant also allowed us to create a Phab Lab/Makerspace to introduce middle and high school students to equipment used in technical programs, presenting two-year degree programs as a viable alternative to a four-year university degree.

Hub #: 216

Developing PLC and Robotic Automation Technician Training for Service Industries

Primary Institution: Vaughn College of Aeronautics and Technology, NY

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Our project addresses the technician shortage in service industries through Vaughn College's PLC and Robotic Automation Technician Certificate program in NYC. Vaughn, a Hispanic-serving institution, prioritizes diversity and affordability. We collaborate with the BILT team to design the relevant curriculum, support faculty certifications, and recruit high school grads and workers. Credits can transfer to Vaughn's Mechatronics program, with a focus on women and minorities. We share insights at various conferences, funded by ATE for tech education in advanced fields.

Hub #: 217

Enhancing the Independent Mechatronics Technical Curriculum and Creating a New Pathway from Rural High Schools into Mechatronics Careers

Primary Institution: South Central College, MN

Secondary Institution: Central Community College, NE

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The main focus of the iMEC 2.0 project was to create a distance learning-based technical career pathway for secondary students in at least twelve high schools in two states. The pathway has merged successfully into the Mechatronics Associated of Applied Science (AAS) degree programs at South Central College (SCC) in Minnesota and Central Community College (CCC) in Nebraska. Utilizing lessons learned and best practices from SCC and CCC's previous NSF and DOL projects. This project iMEC 2.0 has adapted 12 credit hours of curriculum for remote delivery to high school students. The iMEC 2.0 courses are taught by college faculty and supported by high school STEM instructors who act as facilitators for the iMEC 2.0 courses.

Hub #: 218

Enhancing Welding Technician Education through the Transition of the National Center for Welding Education to a Resource Center

Primary Institution: Lorain County Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Center

Weld-Ed provides comprehensive professional development, curriculum enhancement, and technical assistance to high school, community college and university welding technology programs and faculty across the U.S. Our ultimate goal is to improve the quality and quantity of welding technicians to meet ongoing workforce needs.

Hub #: 219

Establishing Veteran Career Training for Advanced Manufacturing Careers

Primary Institution: Kentucky Community & Technical College System, KY

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Elizabethtown Community and Technical College seeks to fill our local manufacturing demand for automation and robotics technicians, utilizing our newly formed partnership with the United States Army called the Career Skills Program. This program is for transitioning soldiers interested in advanced manufacturing jobs who choose to spend the last six months of their service going to school to earn a certificate in one of the many advanced manufacturing programs. These soldiers are transferred to Fort Knox and given six months to earn a certificate in their chosen technical career field.

Hub #: 220

Flying High for New Careers in Aviation Technology

Primary Institution: Johnson College, PA

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Johnson College received funding to support the development of an FAA-certified Aviation Technology associate degree program. FAA certification as a 14 CFR Part 147 Aviation Maintenance Technician School was earned in March 2023; and classes began in August 2023. The program recruits and trains students to fill essential high technology workforce development needs in the aviation industry. Primary objectives were establishment of an airport-based classroom and laboratory, engaging military veterans as part of their transition to civilian life, and faculty development activities.

Hub #: 221

Improving Advanced Manufacturing Courses by Implementing CBE Instructional Elements

Primary Institution: Northwest State Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project teaches faculty how to improve the effectiveness and access of their technical (lecture/lab) courses by increasing the hands-on skills of their students, moving the course to a hybrid format, creating effective learning objects, and implementing individual hands-on skills assessments. Faculty will learn how to find OER, create effective videos, PPT/PDF informational documents, and lab exercises. A major focus is on remote learning and using virtual machines to give students 24/7 access to proprietary software (PLC) and online simulations to develop students' applied knowledge.

Hub #: 222

Improving Advanced Manufacturing Technician Education Using Industry Partnerships

Primary Institution: Central Virginia Community College, VA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

U.S. manufacturing capacity depends on the availability of a well-trained technical workforce, which in turn depends on knowledgeable faculty to educate technicians. MAPS helps industry leaders understand that full-time faculty cannot complete this mission alone and that subject-matter experts in the classroom are vital to everyone's success. MAPS is testing a co-teacher model that pairs an industry adjunct with a fulltime faculty member. While the adjunct contributes to the course content, teaching and administrative tasks are shared. Successful results in the first year show proof of concept.

Hub #: 223

Improving and Modernizing Machinist Training and Education for Machining Workforce Preparation in the Finger Lakes Region of New York

Primary Institution: Rochester Institute of Technology, NY

Secondary Institution: Monroe Community College, NY

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The overall goals of this project are to: (1) improve existing machining training/education programs in response to the skill and knowledge requirements of 21st century interdisciplinary themes; (2) modernize existing machinist training and education using innovative methods and advanced technologies to improve trainee engagement and learning efficiency; (3) expand the machining workforce by increasing the accessibility and flexibility of machinist training/education to various stakeholders; and (4) facilitate machinist training/education interworking and resource sharing among training providers.

Hub #: 224

Improving Automotive Technician Training through a Flexible Industry Apprenticeship Program

Primary Institution: Columbus State Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The AFT project intends to create a flexible apprenticeship pilot to assist incumbent technicians to launch a lucrative career by utilizing the earn and learn model in the automotive industry, a high school awareness initiative, and an employer guide for partners to replicate the program.

Hub #: 225

Improving Industrial Technology Education with Flexible Learning Options and Student Support Services

Primary Institution: Heartland Community College, IL

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Heartland Community College's Flexible Learning for Industrial Technology Education (FLITE) project will demonstrate a new model for industrial technology education that employs an open manufacturing lab and flexible delivery of curriculum to enhance student access and meet industry workforce needs.

Hub #: 226

Improving Students' Advanced Manufacturing Skills with Mastery Learning

Primary Institution: Piedmont Virginia Community College, VA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The Improving Students' Advanced Manufacturing Skills with Mastery Learning project will redesign and improve six fundamental courses in an existing associate degree. The innovative program focuses on the "flipped-classroom" model that emphasizes hands-on, active learning using a combination of mastery concepts and online lectures to prepare students for employment in manufacturing.

Hub #: 300

Improving Technician Skills in Advanced Manufacturing with a Low-Cost Virtual Reality Platform

Primary Institution: Kentucky Community & Technical College System, KY

Secondary Institution: Edmonds College, WA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The Low-Cost Virtual Reality Platform project is developing virtual reality modules on blueprint reading, geometric dimensioning and tolerancing, basic work area safety, and quality control. The developed process and modules are being beta tested for educational effectiveness with incumbent manufacturing technicians and college student technicians. The project team is training community and technical college faculty and staff to develop and implement their own, customized VR educational modules. The project provides an online, open source library of all resulting VR modules and resources.

Hub #: 301

Improving Technician Training in Automation Technologies for Advanced Manufacturing

Primary Institution: Florida State College at Jacksonville (FSCJ), FL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Programmable logic controllers (PLCs) have maintained their dominance in industrial automation. Our grant has four main goals: (1) develop up-to-date PLC, mechatronics, and robotics courses; (2) implement a new PLC program track allowing undergraduate students to earn national PLC industry credentials; (3) establish an FSCJ Innovations Lab for students including virtual learning software, automation studio, and industrial PLCs; and, (4) offer hands-on, experiential immersion experiences for K-12 faculty/staff.

Hub #: 302

Improving Technician Training in Industry 4.0 Technologies Using Competency-Based Education

Primary Institution: Owensboro Community and Technical College, KY

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The Reskilling Manufacturing Technicians Post-COVID with an Industry 4.0 Competency-Based Education (CBE) solution project developed a CBE strategy to reskill current and future manufacturing technicians. Called I-TEC (Industrial Technology Enhanced Credentials), it is an accelerated and flexible delivery model comprised of short-term, stackable certificates. CBE and Industry 4.0 competencies are integrated into core college advanced manufacturing courses that result in six credit-bearing certificates and two national certifications. I-TEC is ideal for both incumbent and dislocated workers.

Hub #: 303

Incorporating Virtual Reality into Advanced Manufacturing Technician Education at a Rural Community College

Primary Institution: Marion Technical College, OH

Secondary Institution: Columbus State Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Marion Technical College, in collaboration with industry and education partners, will create an innovative academic program that incorporates virtual reality (VR) into engineering curriculum at a rural community college. The technology will enable students to safely simulate automation equipment in a factory environment via VR apparatus. This program will increase the supply of skilled technicians to support the advanced manufacturing industry including the semiconductor manufacturing industry and its supply chain partners.

Hub #: 304

Integrating Software and Machine-Lab Instruction

Primary Institution: Pittsburgh Technical Institute (PTC), PA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

PTC's Integrating Software and Machine Lab Instruction project has been enhancing the ability of high schools to deliver technical education by providing mentoring and free dual enrollment MET opportunities to high school students; improving the quality of instruction of PTC instructors; offering professional development opportunities for high school faculty; and strengthening partnerships and increasing internship opportunities for PTC students. Because of this grant, students who have never been exposed to computer-aided drafting (CAD) before are beginning to learn about design and manufacturing, and employment opportunities.

Hub #: 305

Recruitment and Training Support for Diverse Populations in Mechanical and Architectural Manufacturing Technologies (RTS-MT)

Primary Institution: Pittsburgh Technical Institute (PTC), PA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

PTC will address the national and regional need for filling middle-skill positions by: (1) increasing the number of nontraditional (women), diverse, and military veteran students to both PTC's Mechanical Engineering Technologies and Architectural Engineering Technology programs; (2) modifying the architectural curriculum to include more focus on design principles; (3) providing mentoring and instruction to high school students and faculty; (4) providing professional development training and equipment for PTC faculty; and (5) expanding dual enrollment programs at secondary schools. This project will build upon prior experience gained working on the Integrating Software and Machine-Lab Instruction (ISMI) project.

Hub #: 306

Industry 4.0 Skills for Manufacturing Technicians: Adjusting Engineering Technology Programs to Respond to Industry Identified Skills

Primary Institution: FloridaMakes, Inc., FL

Secondary Institution: College of Central Florida, FL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project directly impacts the reality that Industry 4.0 skill gaps exist within Florida's manufacturing and engineering technician workforce. It confronts the skills deficiency issue with the creation of a model for Florida industry, state college, and Department of Education cooperative interactions on Industry 4.0 identified skill needs. Two college-level degree options are being developed to include Industry 4.0 skills. Additionally, a new statewide industry advisory board has begun to guide the program; and relevant professional development will be provided to technical educators.

Hub #: 307

Industry 4.0 Curriculum Development and Occupation-Based Learning Outcomes In Automation

Primary Institution: Lorain County Community College, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The project seeks to address two fundamental issues. One is the need for replicable and scalable Industry 4.0 curricula that can be continuously updated to keep pace with rapid innovations in target industries. Two is the need to strengthen and coordinate partnerships with industry to increase work-based learning and workforce supply. The project will create and extend synergistic activities that address gaps in postsecondary education, educator preparation, and regional and statewide workforce needs.

Hub #: 308

Manufacturing Automation and Additive Design Excellence (MAADE)

Primary Institution: Foothill-De Anza Community College District, CA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

De Anza College's NSF ATE project Manufacturing Automation and Additive Design Excellence (MAADE) will address acute need for CNC machinists and additive manufacturing technicians. MAADE has the following goals: (1) augment credit program offerings in CAD design, additive manufacturing, multi-axis CNC machining, and robotic automation; (2) increase participation of women and other underrepresented groups, including Black and Latinx students; and (3) expand professional development opportunities for faculty in additive manufacturing, multi-axis machining, and robotic automation.

Hub #: 309

Mobile Additive Manufacturing Platform for 21st Century STEM Workforce Enhancement

Primary Institution: Kentucky Community & Technical College System, KY

Secondary Institution: Tennessee Tech University, TN

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The Mobile AMP project educates a new generation of qualified employees in additive manufacturing for Kentucky's and Tennessee's manufacturing workforce. Somerset Community College and Tennessee Tech University updated the existing certificate curriculum in additive manufacturing to include advanced concepts and design methods. A mobile equipment platform for additive manufacturing has also been developed. This mobile additive manufacturing platform enables learning activities in additive manufacturing to be brought to high schools, community colleges, and workplaces across the region.

Hub #: 310

Multiple Academic Pathways for Mechatronics Technicians

Primary Institution: Lake-Sumter State College, FL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Ready-MECH-Go is a comprehensive mechatronics program that supports the need for STEM field workers and intentionally targets innovation in three realms: curriculum, recruitment, and assessment. The Ready-MECH-Go project infuses soft employability skills into the curriculum in a way that can be monitored, measured, and communicated. The premise of the project is that soft skills are the missing link in STEM preparation and these skills should be meaningfully integrated into the curriculum.

Hub #: 311

Preparing Robotics Technicians for Industry 4.0

Primary Institution: Stark State College of Technology, OH

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Automated manufacturing is a continuously evolving field. This grant's goals are designed to: (1) promote awareness and interest in the field of automation and robotic technicians; (2) revise and develop a curriculum that solidifies the students' interest which will inspire their passion for learning; and (3) increase the number of trained technicians ready for the Industry 4.0 technologies they will utilize in their new field. One facet of this grant is to design an extremely low-cost, fun, engaging trainer for hands-on learning.

Hub #: 312

Preparing Students for Technical Careers in Autonomous Technologies for Commercial Trucks and Off-Highway Vehicles

Primary Institution: Dakota County Technical College, MN

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Autonomous technology saves lives. This advanced technology requires trained operators and technicians to properly use, maintain, diagnose, and repair these technologies. The Transportation Center of Excellence (TCOE) is addressing this need in three ways: (1) outreach to high school students communicating available opportunities for training and careers involving autonomous technologies; (2) professional development for college instructors, and curriculum for students around autonomous technologies; and (3) loaning advanced expensive autonomous equipment to various colleges for use in their training.

Hub #: 313

Preparing Students for the Industry 4.0 Technician Workforce

Primary Institution: Wake Technical Community College, NC

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The National Science Foundation has awarded funding to Wake Technical Community College to develop an interdisciplinary, industry-validated, hands-on training program to prepare students from multiple pathways to enter various new and high-demand career opportunities within Industry 4.0 manufacturing careers. This project will develop and implement an updated adaptable knowledge-based curriculum, enhance transfer and noncredit pathways with industry certifications, and disseminate educational materials across North Carolina and beyond.

Hub #: 314

Retooling a Machine Tool Technician Program in North Central Wisconsin to Support Diversity, Flexibility, and Accessibility

Primary Institution: Northcentral Technical College (NTC), WI

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The goal is to increase awareness of and enrollment in machine tool technician students with emphasis on Southeast Asian/Hmong adults. Through retooling of current curriculum to ensure industry relevancy and attraction to skills taught for this high demand occupation, flexible scheduling, cultural professional development for faculty, community outreach through NTC's manufacturing and STEM mobile labs, and peer/near-peer mentorships, the intent is to increase recruitment, matriculation, completion, and employment of Southeast Asian/Hmong students in the Machine Tool Technician programs.

Hub #: 315

Strengthening the Industry 4.0 Workforce through Virtual Reality Training Modules

Primary Institution: Owensboro Community and Technical College, KY

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Owensboro Community and Technical College, the Advanced Manufacturing Technical Education Collaborative (AMTEC), and zSpace, a leader in virtual reality technology collaborated to create an Industry 4.0 virtual reality (VR) application to prepare undergraduate advanced manufacturing students as technicians who understand and utilize Industry 4.0 technologies upon entering the workforce. Additionally, the VR application is utilized as a tool to recruit youth and underrepresented groups into manufacturing. Pilot sites include Downriver CTC (MI), Everett CC (WA), and KCTCS colleges in Kentucky.

Hub #: 316

Supporting Instructors to Embed Design Thinking in Digital Fabrication Courses

Primary Institution: Northern Virginia Community College, VA

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

This ATE project seeks to prepare Northern Virginia educators to embed design thinking into their instruction through a sustained professional learning fellowship. The fellowship has three primary components: (1) a series of spring workshops to develop an understanding of design thinking; (2) practice teaching during the summer at a fabrication camp for youth; and (3) follow-up lesson planning. This project has nearly completed its second year and has served 29 educators from libraries, school districts, and postsecondary institutions.

Hub #: 317

Teaching Technician Troubleshooting with Mini Industry 4.0 Factories

Primary Institution: Bridgerland Technical College, UT

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The goal of the Teaching Technician Troubleshooting with Mini Industry 4.0 Factories (TTTMI4.0F) grant is to increase the capacity of automated manufacturing technicians who can troubleshoot Industry 4.0 systems. To accomplish this task, Bridgerland Technical College has built low-cost industry mini-factory systems trainers; designed and implemented a troubleshooting methodology throughout the certificate curricula; and increased instructor expertise through professional development.

Hub #: 318

Technician Training for Industry 4.0 Technologies

Primary Institution: Texas A&M Engineering Experiment Station, TX

Secondary Institution: Clovis Community College, CA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The goal of this project is to help students learn the necessary skills to be successful in the manufacturing technician workforce. This project will: (1) prepare new graduates for local industry workforce needs by creating course content for Industry 4.0 concepts; (2) enrich skill sets of incumbent workers through certificate programs; (3) create a pipeline for incoming students by working with school districts and offering workshops for secondary school teachers; and (4) host professional development workshops to disseminate project results to instructors at community colleges.

Hub #: 319

The Robotics/Automation and Cybersecurity Knowledge Sharing Coordination Network (TRACKS-CN)

Primary Institution: North Carolina State University, NC

Secondary Institution: Rowan-Cabarrus Community College, NC

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

TRACKS-CN is a coordination network that promotes technician education at the convergence of robotics/automation and cybersecurity. The network includes community colleges and Manufacturing Extension Partnerships, Manufacturing USA Institutes, and the National Initiative for Cybersecurity Education. An output of the project is the Cyber4RAM badge. This microcredential offers cyber awareness training using 11 of the 54 NICE competencies. The badge is available free for learners, and the TRACKS-CN team seeks to broadly disseminate the badge, as well as the process used for its development.

Hub #: 320

Welding Education Smart Technology Program (WEST)

Primary Institution: College of the Canyons, CA

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This ATE project will prepare welding technicians with knowledge of the technical functionality of welding equipment and network-based machines required for the current transition to Industry 5.0. The WEST project will provide a model for two-year colleges throughout the U.S. to align their instructional delivery to industry by fully integrating smart welding technologies into their certificate and degree programs so students are demonstrably prepared to build a successful career in advanced manufacturing sectors.

Hub #: 321

Technician Training for Advanced Manufacturing and Materials

Primary Institution: New York University, NY

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

The goal of this project is to address industry needs for skilled technicians who have training in advanced manufacturing technologies including computer-aided design, additive manufacturing, and engineering materials. This project will use the Business and Industry Leadership Team model to collaborate with industry to develop course content that addresses the knowledge, skills, and abilities that manufacturers need to implement and maintain these technologies. In addition to classroom instruction, students will have experiential learning opportunities using a combination of virtual and hands-on activities.

Hub #: 400

A Regional Approach to College and Career Readiness Pathways in Career and Technical Education

Primary Institution: Crowder College, MO

Discipline: Advanced Manufacturing Technologies

Grant Type: Small New to ATE

Crowder College and secondary technical education centers are partnering to improve the career pathways for students in three high demand program areas. Together they are working to engage employers better through the BILT model, provide professional learning communities for instructors, and create resources for key stakeholders. By improving the career pathways system, they hope to dramatically increase the number of technicians participating in college programs and entering the workforce.

Hub #: 401

Engaging Students from Classrooms and Camps to College and Advanced Technological Careers

Primary Institution: Northwestern Connecticut Community College, CT

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

This project builds a pipeline from middle school and high school to the community college and into technical careers. The program provided professional development and industry externships for teachers who then developed new technical courses and units. Students were provided with tutoring and mentoring by community college students and participated in extracurricular research-based activities and STEM days. Since the implementation of this program, the high school has seen an increase in the number of students enrolling in dual credit programs with the college.

Hub #: 402

Developing and Implementing Hybrid Instruction to Increase the Access of Women and Adult Learners to Diesel Technology Training

Primary Institution: George C. Wallace State Community College-Hanceville, AL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

We were able to create and improve a hybrid diesel program (Diesel by Distance), which offers flexible lab scheduling, at home practice using virtual reality, and online theory to successfully recruit and retain more adult learners and women into the diesel programs at Wallace State than ever before. Customized and targeted marketing, recruitment, and retention practices developed with National Institute for Women in Trades, Technology, and Science (IWITTS) aided in these efforts.

Hub #: 403

Collaborative Research: Revolutionizing Electric Vehicle Education (REVVED)

Primary Institution: Trident Technical College, SC

Discipline: Engineering Technologies

Grant Type: Consortia

The REVVED project is a collaborative effort of Trident Technical College, Clemson University, Greenville Technical College, and Spartanburg Community College using a faculty-driven consortium, NSF projects/centers, and industry support to address the workforce needs of the electric vehicle (EV) manufacturing and service industry. The project uses technology as an innovative educational approach to create motivating and engaging hybrid learning environments for the upskilling of incumbent workers and the education of two-year college students in EV manufacturing and service.

Hub #: 404

National Electric Vehicle Consortium (NEVC)

Primary Institution: Indian River State College, FL

Discipline: Engineering Technologies

Grant Type: Consortia

The National Electric Vehicle Consortium (NEVC) promotes the interaction of a critical mass (400+ partners) of academic, agency, and industry experts across all electric vehicle (EV) disciplines (manufacturing, maintenance repair and operations, fleet conversions, energy and charging infrastructure, recycling, energy storage, and emerging technologies) to help secure the nation's EV workforce pipeline.

Hub #: 405

NEVTEX Next

Primary Institution: Central Oregon Community College, OR

Secondary Institution: Macomb Community College, MI

Discipline: Engineering Technologies

Grant Type: Consortia

The Goal for the NEVTEX Next project is to create and test a model for addressing the need for electric vehicle (EV) technicians accomplished through four objectives: (1) start fifteen new community college EV technician programs by providing industry-recognized credentials developed by NEVTEX; (2) assemble an advisory group to sustain the SAE ITC, which is the electric vehicle certification for educators and EV technicians; (3) prepare certified EV instructors to equip educators and EV technicians for the national EVPROplus training and testing; and (4) share best practices.

Hub #: 406

A Comprehensive Approach for Preparing Community College Career Programs to Support the Vehicle to Grid Transition

Primary Institution: Hudson Valley Community College, NY

Discipline: Engineering Technologies

Grant Type: Small New to ATE

Using the Electric Vehicle Charging Station (EVSE) as its nexus, this project will prepare students to enter the growing field of electric vehicle charging station installation, service, and repair. Flexible modules will be developed to educate electrician students in the operation of electric vehicles and expose automotive repair students to the operation of the power grid. To ensure dissemination of the materials developed, K-12 and community college faculty will be trained in electric vehicle operation/charging standards and the operation of local and national power grids.

Hub #: 407

Automotive Technician Education on Electrified, Automated, and Connected Vehicles

Primary Institution: Macomb Community College, MI

Discipline: Engineering Technologies

Grant Type: ATE Project

Macomb Community College is launching an innovative project to address the evolving mobility industry in Southeastern Michigan. The college will introduce an associate degree in Electric Vehicle Technology, along with certificates in Connected and Automated

Vehicles and Cybersecurity. These programs cater to the industry's specialized needs, supporting OEMs and suppliers in this region. With a focus on hands-on experience and industry collaboration, Macomb aims to equip students with the skills required for success in electric and connected mobility.

Hub #: 408

Amping Up Today's Electric Drive Automotive Education: Advanced Modules in Powered Electric Drive (AMPED) Technology Certification

Primary Institution: Minnesota State Community & Technical College, MN

Secondary Institution: Riverland Community College, MN

Discipline: Engineering Technologies

Grant Type: Small New to ATE

This new to ATE grant consists of creating a hybrid electric vehicle (EV) program, building local infrastructure, and creating curriculum that can be used by anyone teaching this new technology within their automotive technology programs. A segment will take existing technicians and retrain them for hybrid and electric cars. We are working with Riverland Community College where they will also implement the same certificate in their program.

Hub #: 409

Educating Autonomous Vehicle Technicians

Primary Institution: Minnesota Riverland Technical College, MN

Discipline: Engineering Technologies

Grant Type: Small New to ATE

Our MAST accredited program is adding a nine credit ADAS Certificate as of Spring 2024. Our industry partners are expressing a strong interest and desire to work with us in implementing the project and will actively support our work by offering internship positions and other support. The instructors are, in cooperation with our academic partners, ATE centers, and industry, developing curriculum. The aim of the project is to make the program adaptable and responsive to industry needs, thus appealing to students.

Hub #: 410

Automotive Technician Training for Electric Vehicles

Primary Institution: Sinclair Community College, OH

Discipline: Engineering Technologies

Grant Type: ATE Project

The primary goal of this project is to create industry-supported educational resources to increase the capacity of accredited postsecondary institutions nationwide to train automotive technicians in electric vehicle (EV) service/repair. A secondary goal is to grow the pipeline of students in southwest Ohio who pursue automotive careers to meet emerging workforce needs for knowledgeable and skilled automotive technicians.

Hub #: 411

Educating Advanced Driver Assistance Systems Technicians

Primary Institution: Florida State College at Jacksonville, FL

Discipline: Engineering Technologies

Grant Type: ATE Project

A shift in transportation technology has taken place with vehicles equipped with Advanced Driver Assistance Systems (ADAS) and the advent of autonomous vehicles (AV) and intelligent cars. An automotive workforce with the knowledge needed to manage and maintain these systems is critical. The Advanced Driver Assistance Systems Technicians (ADAS Tech) project will produce workforce-ready technicians that are capable of diagnostics and calibrations for RADAR, LiDAR, and camera technology on ADAS and AV systems.

Hub #: 412

Integrating Electric Vehicle Technology in Legacy Automotive Programs

Primary Institution: Northeast State Technical Community College, TN

Discipline: Engineering Technologies

Grant Type: Small New to ATE

Northeast State Community College's (NeSCC) electric vehicle initiative, will advance current automotive technician education by enabling faculty leaders to integrate electric vehicle maintenance and repair technology into legacy automotive technician training programs. The project's objectives are to leverage existing relationships with industry partners to continue to meet the local and regional workforce needs; create and adapt electric vehicle maintenance and repair curriculum; recruit a diverse student population to enter the program; and continue growth of industry and academic partnerships.

Hub #: 413

Improving Technician Training in Battery Technology

Primary Institution: Florida State College at Jacksonville, FL

Discipline: Engineering Technologies

Grant Type: ATE Project

The National Science Foundation awarded Florida State College in Jacksonville, Florida $378,987 to develop a curriculum for educating future electric vehicle (EV) battery technicians. The project will integrate instruction on battery technologies in the cross-sector fields of electric/hybrid vehicles and unmanned aircraft systems.

Hub #: 414

Providing Opportunities for Women in Next Generation Electric Vehicle Technologies

Primary Institution: Rio Hondo College, CA

Discipline: Engineering Technologies

Grant Type: ATE Project

The focus of this project will be to further promote improvement in the education of the Electric/Hybrid/Fuel-Cell Technician Associate Degree to include our articulated high schools with automotive programs and include the underrepresented female population that normally do not enter the automotive field after high school. Historically this demographic does not transition to the workforce of the automotive field. Our objective is to interest female students with a specific approach showing the clean and technical side of electric vehicles.

Hub #: 415

Adopting the STEM Guitar Curriculum to Prepare Students in American Samoa for Technician Education

Primary Institution: American Samoa Community College (ASCC), AS

Discipline: Engineering Technologies

Grant Type: ATE Project

The American Samoa Technician Education Readiness Pathway (TERP) project's goal is to provide students with the knowledge and competency skills to be college ready to attend the ASCC Technician Education program and/or postsecondary education that will lead towards a STEM technician pathway. This program will also train teachers who need to be more engaging in how they teach applied mathematics, and writing and reading comprehension to students who are English Language Learners. Building guitars helps to pique the interest of both teachers and students to achieve goals.

Hub #: 416

Guitar, Robotics, Rocketry ATE (GRRATE) Summer Institutes

Primary Institution: Santa Fe College, FL

Discipline: Engineering Technologies

Grant Type: ATE Project

Santa Fe College proposes the Engaged Student Learning Level 2 GRRATE Summer Institutes (Guitars, Robotics, and Rocketry Advanced Technological Education Summer Institutes) to respond to the need for diverse candidates in STEM Fields. This project is an expansion of a previous NSF ATE funded project which developed the experiential GRRATE curriculum. This project will leverage the curriculum and infrastructure developed and extend the curriculum to pre-college students through a summer institute.

Hub #: 417

National Center for Autonomous Technologies (NCAT)

Primary Institution: Northland Community & Technical College, MN

Discipline: Engineering Technologies

Grant Type: ATE Center

NCAT serves as a resource hub for educational growth in autonomous technologies, providing curriculum and materials. NCAT believes that commonality of knowledge, skills, and abilities (KSAs) is needed in autonomous technology curricula. NCAT is working towards disseminating the core standards and associated curriculum preparing students for autonomous system technician careers. NCAT also created Experience STEAM, an experiential learning framework that uses nontraditional outreach settings and methods for discussions about advanced technician education and technician career pathways.

Hub #: 418

Increasing Community College Participation in the Marine Advanced Technology Education's Remotely Operated Vehicle Competition

Primary Institution: Marine Technology Society, DC

Discipline: Engineering Technologies

Grant Type: ATE Project

The goal of this project is to increase the number of community colleges that participate in the MATE ROV Competition. Faculty and students involved with the project are provided with the following resources: a starter "kit of parts;" instructional materials that complement the kit; mentors who are experienced ROV team advisors; funding for travel to competition events; Evaluate-Compete, a methodology that demonstrates student learning gains and program impact; and access to the MATE Competition Network of regional coordinators, working professionals, and global community of learners.

Hub #: 419

Applied Design Thinking for Product Development Technicians (ADTPDT)

Primary Institution: NorthWest Arkansas Community College, AR

Discipline: Engineering Technologies

Grant Type: ATE Project

The ADTPDT project will provide opportunities for students to gain interdisciplinary skills and industry-ready credentials while exploring multiple degree tracks and career paths through design thinking, integrated design, and industry advised KSAs. This project will expand our existing technical certificate in Integrated Design (TC-ID), which integrates our construction technology, CAD, and fine arts programs to include engineering technology and graphic design. Additionally, this project will support professional development in sustainable practices for product development.

Hub #: 420

Resource Collaborative for Immersive Technologies (RECITE)

Primary Institution: St. Cloud State University, MN

Discipline: Engineering Technologies

Grant Type: ATE Project

RECITE (Resource Collaborative for Immersive Technologies) propels X-Reality (XR) technology integration within NSF ATE domains. The project evaluates XR adoption in two-year colleges, producing resources for streamlined implementation. It establishes XR-centric faculty development, refining direct instruction. The initiative constructs an XR repository for ATE projects and XR-based OER and aims to expand XR usage, linking high schools, academia, and industry. RECITE envisions a cohesive educational approach that integrates XR technologies.

Hub #: 421

Expanding Educational Opportunities for Secondary and Postsecondary Educators and Students in the Technology and Applications of Unmanned Aircraft Systems

Primary Institution: Southwestern College, CA

Discipline: Engineering Technologies

Grant Type: ATE Project

The mission of this project is to prepare students to become skilled and thoughtful members of the UAS workforce. Project areas include: (1) development of work-based learning modules; (2) educator workshops in UAS applications and operations; and (3) summer high school academies designed to inform and excite students about UAS applications, educational opportunities, and career pathways. A unique cultural element of the academies is the inclusion of students from the Pacific Islands and San Diego County, where students work together with different global perspectives to solve problems.

Hub #: 422

Broadening Participation in the Automation Technician Workforce

Primary Institution: Miami Dade College, FL

Discipline: Engineering Technologies

Grant Type: ATE Project

The overall goal of this project at Miami Dade College is to increase the educational attainment of underrepresented minorities in the applied robotics and engineering field of STEM by strengthening the pipeline from high school to college.

Hub# 423

Enhancing Aviation Maintenance Technician Training with Nondestructive Testing Skills

Primary Institution: Florida State College at Jacksonville, FL

Discipline: Advanced Manufacturing Technologies

Grant Type: ATE Project

Florida State College at Jacksonville secured a substantial NSF grant to enhance aviation maintenance training. This initiative integrates NDT education, establishes a dedicated lab, and promotes diversity by increasing underrepresented enrollment, focusing on women and marginalized communities.

Hub #: 500

Data Center Operations Program Development (DCO PD): A National Approach to Improving Capacity for Data Center Education

Primary Institution: Northern Virginia Community College (NOVA), VA

Discipline: Engineering Technologies

Grant Type: ATE Project

DCO PD has the following program components: (1) a DCO PL Fellowship for educators where fellows attend a 3-day PL series at NOVA's data center training facility in Woodbridge, VA led by experienced industry professionals, complete a 5-day DCO externship at an operational data center nearest their college, and produce a data center education action plan for integrating data center operations content into their professional practice; (2) an awareness and recruitment campaign through ACTE's national conferences; and (3) the development of a Data Center Education Digital Resource Hub.

Hub #: 501

Expanding Regional Capacity for Training in Engineering Technology and Data Center Operations

Primary Institution: Northern Virginia Community College, VA

Discipline: Engineering Technologies

Grant Type: ATE Project

This project is designed to increase regional capacity for training in Engineering Technology and Data Center Operations through expanded recruitment, employment training, and increased collaboration between industry, K-12 educators, and faculty. NOVA has implemented a successful marketing campaign, summer bridge program, and educator externship to raise awareness for these fields.

Hub #: 502

Building a Career Pathway from High School into the Workforce for Skilled Technicians in Electrical, Industrial, and Process Engineering Technology

Primary Institution: Southern University at Shreveport, LA

Discipline: Engineering Technologies

Grant Type: Small New to ATE

Building a Career Pathway from High School into the Workforce for Skilled Technicians in Electrical, Industrial, and Process Engineering Technology is a project whose overarching goal is to advance technical education through the development and implementation of a three concentration AAS degree in Engineering Technology that can strengthen the workforce pipeline of diverse, skilled graduates to meet northwest Louisiana's workforce needs.

Hub #: 503

Developing Pathways to Engineering Technology Careers

Primary Institution: Mount San Antonio College, CA

Discipline: Engineering Technologies

Grant Type: ATE Project

This ATE Connects hub will provide an overview of institutional supports for engineering and engineering technology students within a community college program. The specified community college program has begun to offer six AS degrees and thirteen certificates in the fields of engineering and engineering technology. These program awards will serve as curricular milestones with stackable credits that align with students' transfer and employment goals.

Hub #: 504

Electronics and Engineering Technician Training in High Technology for the 21st Century

Primary Institution: Suffolk Community College, NY

Secondary Institution: Holyoke Community College, MA

Discipline: Engineering Technologies

Grant Type: ATE Project

The enhanced and flexible technical skills learning provided by this project for electronic vehicle automotive technology and engineering students through portable electronics lab/equipment and simulations, uniquely prepares students for careers and advanced academic study. Industry is engaged via BILT to provide student internships, portable labs, and virtual simulations to enhance student skills. High school educator training is also provided to equip secondary educators with the skills, knowledge, and tools to create engaging and impactful learning experiences, thereby expanding the pipeline of technical students.

Hub #: 505

GeoTEd-UAS: Improving Pathways into the Geospatial and Unmanned Aircraft Systems Technician Workforce

Primary Institution: Virginia Space Grant Consortium, VA

Secondary Institution: Germanna Community College, VA

Discipline: Engineering Technologies

Grant Type: ATE Project

Virginia Space Grant Consortium, Germanna Community College, Virginia Community College System, and Virginia Tech are expanding academic pathways and increasing faculty capacity to prepare and diversify the future geospatial technology and small uncrewed aircraft systems operation technician (sUAS-OT) workforce. The GeoTEd-UAS project is leveraging partnerships and resources to prepare students for employment in these high tech fields. Hands-on UAS training institutes are preparing faculty to integrate technologies across the curriculum and to implement student service-learning projects.

Hub #: 506

Expanding Geographic Information Science Technology Education

Primary Institution: Portland Community College (PCC), OR

Discipline: Engineering Technologies

Grant Type: ATE Project

The overall goal of this project is to improve student recruitment, retention, and program completion in PCC's geospatial programs. We take a comprehensive approach that includes training and support for high school and community college faculty; connecting career mentors to BIPOC youth and PCC geospatial students; creating a "Women in Geospatial Careers" lecture series; creating and building partnerships with community-based organizations; providing internship opportunities for students; and developing a capstone project model for the Geospatial Applications class.

Hub #: 507

Expanding the Engineering Technician Pipeline for Industry 4.0

Primary Institution: Columbus State Community College, OH

Discipline: Engineering Technologies

Grant Type: ATE Project

This project is strengthening the engineering technology pipeline through a manufacturing summer institute model for high school students, a collaborative robotics center for teaching and learning, newly developed curriculum in cobots, and a plan for ongoing professional development and access to Industry 4.0 post-graduate certificate opportunities.

Hub #: 508

Hybrid Curriculum for Upskilling Photonics Technicians in Advanced Optics and Quantum Research Enabled Technologies

Primary Institution: Indian River State College, FL

Discipline: Engineering Technologies

Grant Type: ATE Project

EdQuantum pioneers the introduction of the complex subject of quantum science into advanced technological education. The EdQuantum curriculum consists of three courses in quantum technologies that combine theory and hands-on activities and build competencies needed by this emerging industry. The curriculum will be delivered via an open-access platform to reduce geographic barriers between colleges, students, and companies making quantum products. This approach aims to add diversity to the skilled workforce, foster equal economic growth, and help ensure U.S. leadership in this emerging field.

Hub #: 509

Improving Student Career Readiness through Experiential Learning and Internships (ISCRELI)

Primary Institution: Los Angeles Pierce College, CA

Discipline: Engineering Technologies

Grant Type: ATE Project

ISCRELI – The Career Readiness Project has established a recruitment, retention and internship model for low-enrolled CTE programs in architecture, electronics, and engineering. Projects include the development of a hands-on summer program for high school students; opportunities to grow career readiness skills through experiential learning using collaborative projects in partnership with local stakeholders; an internship program established through partnerships with local employers; and a student support course for those participating in internships.

Hub #: 510

Rural Electronics Education Hub Pilot in the Upper Mississippi River Basin

Primary Institution: Minnesota State College–Southeast Technical (MSCS), MN

Discipline: Engineering Technologies

Grant Type: ATE Project

The major goal of this project is to increase and sustain the pipeline for electronics technology careers for technicians and professionals in rural settings through deployment of a Basic Electronics dual-enrollment certificate program with rural high schools. This program would also be available to college students and working adults. The goal was to develop a 9 credit electronics certificate; establish course transferability of the Basic Electronics Certificate to multiple AAS programs at MSCS; and pursue other higher education articulations.

Hub #: 511

Resource Center for Laser, Photonics, and Fiber Optics Education (LASER-TEC)

Primary Institution: Indian River State College, FL

Discipline: Engineering Technologies

Grant Type: ATE Center

LASER-TEC's mission is to update, maintain, and provide open access for a broad range of services and materials to secondary, postsecondary, and industry educational and training programs with the intention of continuing expansion in the robust laser, optics, photonics, and fiber optics technical workforce.

Hub #: 512

SkyBayTech: Meeting the Bay Area's Electronics Technician Workforce Need

Primary Institution: San Mateo County Community College District, CA

Discipline: Engineering Technologies

Grant Type: ATE Project

Operating from Skyline College in California's Silicon Valley and San Francisco tech region, the SkyBayTech Electronics Manufacturing Technician program is designed to meet local workforce needs through hands-on and project-based learning experiences for students to gain the knowledge, skills, and competencies needed within the local technician workforce. The project includes development of curriculum and certificates, a cutting-edge electronics manufacturing lab facility, collaborative industry and dual enrollment high school partnerships, and industry-led faculty professional development.

Hub #: 513

Training for Mechatronics Engineering Technicians in Colorado

Primary Institution: Arapahoe Community College, CO

Discipline: Engineering Technologies

Grant Type: Small New to ATE

This grant is focused on four goals: (1) build on the existing mechatronics program to incorporate experiential learning and additional BILT recommendations to produce workforce ready mechatronics engineering technicians; (2) develop an educational pipeline from local high schools into the mechatronics program; (3) enhance the capacity of college faculty to provide relevant and up-to-date education in mechatronics; and (4) expand program enrollment through outreach to women, low-income, and racial and ethnic minorities

Hub #: 514

Training Building Automation Technicians (BAT) – A New Program

Primary Institution: Wake Technical Community College, NC

Discipline: Engineering Technologies

Grant Type: ATE Project

BAT students need a background in HVAC, electrical systems, and electronics. At Wake Tech Community College, a new lab has been built and five new courses developed by a team pulled from electronics, HVAC, and electrical systems instructional departments. There is a lab with air handlers, chillers, and boiler, with VAV boxes and controllers for each student. We have also built portable trainers to allow for teaching introductory courses or high school camps away from the lab. Courses include: Introduction to BAT, Logic and Programming, Networking, Integration, and Controls.

Hub #: 515

Access to Careers in Advanced Building Technology (ACABT)

Primary Institution: Milwaukee Area Technical College, WI

Discipline: Engineering Technologies

Grant Type: ATE Project

Connecting economic equity with climate change and industry need for workers, ACABT is hosting workshops in underserved areas of Milwaukee with the help of CBO's. The workshop provides career information on advanced building technologies and is held in the communities where people live. Those who go on to take courses at MATC toward established digital badges and pre-apprenticeship will receive grants, paying for tuition and wrap-around services. Industry partners hire students taking classes providing the opportunity to learn more about the careers in the building industry.

Hub #: 516

Enhancing Design and Construction Technology Education through the Context of Mass Timber

Primary Institution: Michigan State University, MI

Secondary Institution: Henry Ford College, MI

Discipline: Engineering Technologies

Grant Type: ATE Project

The architecture, engineering, and construction (AEC) industry is making a significant shift toward adopting mass timber construction in the U.S. This shift is supported by improved cost, schedule, and sustainability performance realized on several mass timber projects. Despite this shift, lack of education and training for technical positions is repeatedly cited as a barrier to greater adoption of mass timber. This project addresses that by developing a model postsecondary mass timber curriculum for AEC students featuring modular curriculum utilizing virtual and augmented reality technology.

Hub #: 517

Strengthening Community College and Workforce Partnerships in Construction Management

Primary Institution: Hudson County Community College (HCCC), NJ

Discipline: Engineering Technologies

Grant Type: Small New to ATE

HCCC has started a Construction Management program. New Jersey and New York are experiencing a surge in construction projects to replace their ailing infrastructure. This creates a need for qualified individuals from all segments of society including women and minorities to enter construction related professions. The program trains students to coordinate and supervise all phases of modern-day construction. This NSF ATE grant is utilized to update the curriculum and develop novel programs to produce trained technicians who meet the needs of today's construction industry on a continuing basis.

Hub #: 518

Building Efficiency for a Sustainable Tomorrow (BEST) Center

Primary Institution: University of California-Berkeley, CA

Discipline: Engineering Technologies

Grant Type: ATE Center

Based at UC Berkeley, the Building Efficiency for a Sustainable Tomorrow (BEST) is a national resource center advancing high performance building operations through the improvement of building science and technician education. This collaboration unites community and technical colleges, universities, high schools, and industry partners to support advanced educational programs in commercial heating, ventilation, air conditioning and refrigeration HVAC/R, building automation, and energy management. BEST has also developed a new technician credential for High-Performance Building Operations Professionals

Hub #: 519

Product Design Incubator (PDI): Fostering an Entrepreneurial Mindset through Interdisciplinary Product Design

Primary Institution: Northern Virginia Community College, VA

Discipline: Engineering Technologies

Grant Type: ATE Project

PDI teaches teams of community college students the skills to succeed in a digital fabrication arena through a product design challenge. Utilizing entrepreneurship, creativity, and design thinking to develop innovative products, the curriculum guides students through ideation, prototyping, and final pitch presentations. PDI's goals are to increase contact between students and industry professionals, foster interdisciplinary collaboration between NOVA students and staff, and increase the supply of IET workers with industry-required collaboration, communication, and critical thinking skills.

Hub #: 520

Northeast Consortia for Advanced Integrated Silicon Technologies (NCAIST)

Primary Institution: SUNY Polytechnic Institute, NY

Secondary Institution: Pennsylvania State University, PA

Discipline: Micro and Nano Technologies

Grant Type: Consortia

The mission of the Northeast Consortium for Advanced Integrated Silicon Technologies (NCAIST) is STEM-skilling the human supply chain for advanced manufacturing with an emphasis on Si-based PIC technologies and electronic-photonic integrated circuits (EPICs). Working closely with AIM Photonics, NCAIST will coordinate and accelerate the transition of technician education content and teaching methodologies from key AIM-affiliated U.S. universities to community and technical colleges in the northeast U.S.

Hub #: 600

The Micro Nano Technology Education Center (MNT-EC)

Primary Institution: Pasadena City College, CA

Discipline: Micro and Nano Technologies

Grant Type: ATE Center

The Micro Nano Technology Education Center was founded on the idea that working together to accomplish a greater goal will enhance the quality of education for our students who then become higher quality technicians for our industry. MNT-EC is developing a coordinated national approach to advance MNT education by strengthening and fostering the creation of new programs across the United States, delivering professional development, conducting strategic outreach, recruitment and retention of traditional and underrepresented faculty/students, and creating a deep industry and education alliance that supports student success.

Hub #: 601

Support Center for Microsystems Education (SCME)

Primary Institution: University of New Mexico, NM

Discipline: Micro and Nano Technologies

Grant Type: ATE Center

Microsystems (MEMS) technology supports the explosion in biomedical, transportation, homeland security, and personal electronics applications with over $11 billion per year device market. The SCME seeks to scale the nation's educational capacity to produce technologists in these areas. Come talk to us about bringing micro/nano technology to the classroom and how you can partner with us. We have a wide selection of downloadable web-based materials, including videos, lectures, animations, and printed materials. See our selection of hands-on kits, discuss professional development opportunities for your faculty, and bring engaging microsystems STEM concepts to your classroom.

Hub #: 602

Flexible Technology Education to Upskill/ Reskill for a Vacuum Technician Career

Primary Institution: Normandale Community College, MN

Secondary Institution: Erie Community College, NY

Discipline: Micro and Nano Technologies

Grant Type: ATE Project

FlexTechEd is developing and delivering modularized courses to educate technicians with just enough cross-disciplinary STEM skills that prepare them to support more complex technologies in today's workplace. Delivering a modularized curriculum will increase access to a wide range of populations, particularly nontraditional aged adults who may have completed some college-level course but without earning a credential. Using intentional strategies to attract and support students helps us understand how to effectively retain individuals in a program of study until they earn a credential.

Hub #: 603

Developing an E-Book and Other Interactive Instructional Materials for Technician Education in Vacuum Technology

Primary Institution: Erie Community College, NY

Secondary Institution: Normandale Community College, MN

Discipline: Micro and Nano Technologies

Grant Type: Small New to ATE

Vacuum technology is an enabling technology for industries such as semiconductor manufacturing. Recent legislation, such as the CHIPS Act, has spurred an expansion of the semiconductor sector and increased demand for a trained technician workforce. Preparing technicians for the semiconductor industry is challenging for community colleges. Colleges lack the technician-level educational materials, faculty expertise, and resources to offer laboratory instruction in vacuum technology. The e-book and ancillary materials developed by our project provide solutions to address these challenges.

Hub #: 604

A California Central-Coast Partnership for Industry-Focused Micro/Nanotechnology Education

Primary Institution: Santa Barbara City College, CA

Discipline: Micro and Nano Technologies

Grant Type: Small New to ATE

CC-PRIME is a collaborative project between Santa Barbara City College and the California NanoSystems Institute, to utilize local micro/nanotechnology industry input and leverage the advanced cleanroom facilities at the university institute, in order to fill a demonstrated industry need for job-ready cleanroom manufacturing technicians in the region.

Hub #: 605

Microelectronics and Nanomanufacturing Partnership for Veterans

Primary Institution: Pennsylvania State University, PA

Discipline: Micro and Nano Technologies

Grant Type: ATE Project

The Microelectronics and Nanomanufacturing Veterans Partnership helps to meet the needs of a growing microelectronics and semiconductor workforce. It features live-streamed lectures delivered to four regional community college partners and substantial hands-on-site training in a cleanroom environment at local partner universities. Military veterans enrolled in this 12-week program learn the principles and practices needed to succeed when they enter the semiconductor industry and other related industries.

Hub #: 606

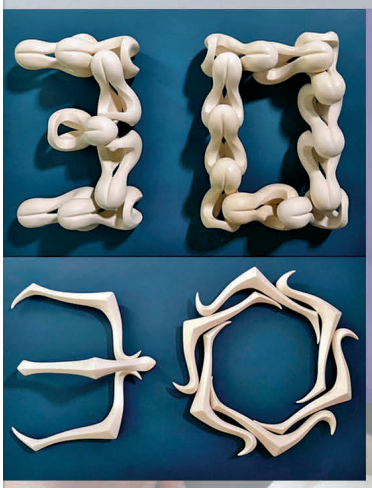
Supporting Micro and Nano Technicians through Hybrid Teaching Methods

Primary Institution: Maricopa County Community College District, AZ

Discipline: Micro and Nano Technologies

Grant Type: Small New to ATE

Nano Knows No Limits, based at Rio Salado Community College, Tempe, AZ is dedicated to bringing technician training to students wherever it is needed. The hybrid nature of this grant allows a greater degree of flexibility and inclusivity in both academic and career journeys. Efforts reach its widest demographic through collaborations with ASU, Solar Cell 101 Manufacturing Workshops, and local high school partnerships, introducing students to micro and nanotechnology programming and career opportunities. It offers the most up-to-date and innovative curriculum and classroom opportunities.



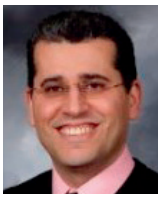
During the ATE Connects sessions, you're invited to innovate with Cojiform. This system of connecting sculpture parts can be combined into an endless array of designs, including the number 30.

Let's see how many different 30's we can build!

website: cojiform.com
instagram: @cojiform

Artist Isaac Bower, the inventor of Cojiform, (far right) is on-site to help you build with these unique modular forms. You can capture an artful photo of your work using the lights and backdrops within the Cojiform exhibit.

NSF ATE PROGRAM STAFF



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