For a map of each level, see pages 64–66.
It is with great pleasure that we welcome you to Chicago, Illinois, and the 2014 High Impact Technology Exchange Conference! Now in its sixth year, HI-TEC is fast becoming the “go to” place for educators, technicians, and industry working in advanced technologies. We have added new “special sessions” and more traditional breakout sessions to make this the best HI-TEC yet. HI-TEC is a unique opportunity to connect with old friends and partners and make new ones too. The conference provides many and varied networking opportunities including breaks, meals, dedicated time in the exhibit hall, and a Wednesday afternoon reception. We look forward to meeting each and every attendee.

We hope you will take advantage of the many preconference workshops and the tours to The Plant, The Equinix, the Chicago Deep Tunnel, and the UPS Consolidation Hub. During the conference you can enjoy the keynote speakers, attend breakout sessions from a strong list of 70, and discuss technology and new approaches to teaching and learning at the poster sessions. We heartily welcome several new exhibitors. Be sure to meet them, along with those who are back from previous years. Check out everyone’s products and services and be sure to stay for prize giveaways. You may even win a hotel stay, but remember, you must be present to win!

Use this program and the conference mobile site as your guide. Scan the QR code provided in your conference packet to access the program book on your mobile device. You will find the conference program, a list of exhibitors and presenters, and lots of other information.

Thank you for being here. HI-TEC would not exist without you. We hope it will be a valuable and unforgettable experience. Please mark your calendar for HI-TEC 2015 in Portland, Oregon, at the beautiful Portland Marriott Downtown Waterfront, July 27–30.

Marilyn Barger, 2014 Co-Chair, FLATE
John Sands, 2014 Co-Chair, CSSIA
The HI-TEC conference, now in its sixth year, represents a truly remarkable collaboration. There are 38 NSF ATE Centers and Projects who have come together to produce this event – all grounded in the field of Advanced Technology Education. This group works through committees that drive the various aspects of conference production, and we would like to thank them for their time and effort in making HI-TEC a great conference. Lynn Dohm and Ginny Swyndroski guided the marketing activities, while Michael Lesiecki took on the considerable task of organizing the program. Mel Cossette organized the award functions, Ann Beheler and Deb Newberry contributed their expertise to the executive steering committee, and Kevin Cooper managed the sponsorship program. Special thanks goes to Gordon Snyder who helped coordinate the many technology needs for the conference, and to John Sands and Mike Davis who helped provide equipment for the workshops and sessions.

The real production of this conference was accomplished by the Center for Occupational Research and Development (CORD). A conference is a matter of details and relentless attention to all of them. Our thanks and regards go to Sheila Wilson and her CORD colleagues who so ably produced our event. We are very happy to have them as part of our team.

A major event such as HI-TEC can only take place with considerable financial support. We gratefully acknowledge the funding of the Advanced Technological Education program by the National Science Foundation. Throughout the program’s 20-year history, the NSF funding has enabled the development of the community of ATE centers that produce HI-TEC.

Within the conference we have a unique set of exhibitors in the Exhibit Hall. We thank them for bringing awareness to all of the products and services that ultimately help our students succeed. But, our biggest thanks go to our attendees. It is they who have worked hard this summer preparing presentations to share their work for breakout and poster sessions, figured out how to get the funding to attend, and generously share their knowledge, passion and ideas with each other and with us. This is the true value of the HI-TEC conference—a place to build relationships in our common quest to better prepare students for the New American Workforce.

Marilyn Barger, 2014 Co-Chair
FLATE

John Sands, 2014 Co-Chair,
CSSIA
Hotel Information
Hyatt Regency Chicago
151 E. Wacker Drive
Chicago, IL 60601
312/565-1234

Registration Hours
HI-TEC Registration Desk,
Outside Regency Ballroom
Sunday 4:00–7:00 p.m.
Monday 7:00 a.m.–6:00 p.m.
Tuesday 7:00 a.m.–6:00 p.m.
Wednesday 7:00 a.m.–5:00 p.m.
Thursday 7:30 a.m.–1:00 p.m.

Exhibit Hall
Riverside Center West,
Purple Level, East Tower

Wednesday
9:45 a.m.–6:00 p.m.
Reception 4:30–6:00 p.m.
Prize Drawings
10:00 a.m. • 3:20 p.m. • 5:00 p.m.

Thursday
7:30 a.m.–Noon
Prize Drawings
8:00 a.m. • 10:15 a.m.

Special Thanks
Our thanks goes to Alexander Montalvo who will be singing the National Anthem at the Wednesday morning Opening Session. Alexander is a student at Wilbur Wright College in Chicago.

To enter drawings, complete the Exhibit Hall drawing card in your conference bag and drop the card at registration.
Chad Jenkins is primarily interested in the development of methods for autonomous control and perception through leveraging human performance from the real world. His work furthers the idea that robot control and computational perception are better learned from human demonstration rather than explicit computer programming.

Chad's previous efforts were mostly geared towards humanoid robotics with respect to learning primitive behaviors for robot control through imitation. More generally, he addresses perception, control, and learning issues at the intersection of robotics, computer vision, computer animation, machine learning and interactive systems.

Ms. Hilary Mason serves as the Data Scientist in Residence at Accel Partners and as an Advisor of Accel Big Data Fund. She serves as an Advisor of Mortar Data Inc. and is a Mentor at TechStars, LLC. Hilary is a Computer Science Professor with a background in machine learning and data mining. She advises Mayor Bloomberg on Technology and Innovation and was named in Forbes’ 40 Under 40. Hilary is an enthusiastic Central Member of the larger conspiracy to evolve the emerging discipline of data science. She served as the Chief Scientist/Lead Scientist at bitly, Inc. (alternately Bit.ly). She co-founded HackNY and serves as a member of the Business Advisory Board of Maternova, Inc. Hilary is an enthusiastic developer and often releases code on her personal site. She started the data science blog Dataists (dataists.com) and is a member of hacker collective NYC Resistor. Hilary is widely published and regularly speaks at academic and industry conferences. She holds undergraduate degrees from Grinnell College in English and Computer Science and graduate degrees from Brown University in Computer Science with a focus on Artificial Intelligence.
**SCHEDULE AT A GLANCE**

**Sunday, July 20**  4:00–7:00 P.M. Registration (Outside Regency Ballroom)

All conference events held in West Tower except Exhibit Hall, which is located in East Tower.

### PRECONFERENCE

**MONDAY • July 21**

- **7:00 A.M.–6:00 P.M.**
  Registration (outside Regency Ballroom)

- **8:00–8:30 A.M.**
  Continental Breakfast (for morning workshop attendees; Regency A)

- **8:30 A.M.–Noon**
  Preconference Workshops

- **10:00–10:30 A.M.**
  Refreshment Break (Regency Foyer)

- **Noon–1:00 P.M.**
  Preconference Lunch (for afternoon workshop attendees; Regency A)

- **1:00–4:30 P.M.**
  Preconference Workshops

- **2:30–3:00 P.M.**
  Refreshment Break (Regency Foyer)

**TUESDAY • July 22**

- **7:00 A.M.–6:00 P.M.**
  Registration (outside Regency Ballroom)

- **8:00–8:30 A.M.**
  Continental Breakfast (for workshop attendees; Regency A)

- **8:30 A.M.–Noon**
  Preconference Workshops

- **10:00–10:30 A.M.**
  Refreshment Break (Regency Foyer)

- **Noon–1:00 P.M.**
  Lunch on Your Own

- **1:00–5:00 P.M.**
  Preconference Tours (Buses load 12:15 P.M.)

*Must be registered to participate in Monday and Tuesday events.*

### MAIN CONFERENCE

**WED • July 23**

- **7:00 A.M.–5:00 P.M.**
  Registration (outside Regency Ballroom)

- **7:45–8:30 A.M.**
  Continental Breakfast (Regency ABC)

- **8:30–9:45 A.M.**
  Opening and Keynote (Regency ABC)

- **9:45–10:15 A.M.**
  Refreshment Break / View Exhibits Posters (Riverside Center West)

- **9:45 A.M.–6:00 P.M.**
  Exhibit Hall Open (Riverside Center West)

- **10:15–11:00 A.M.**
  Breakout Sessions #1

- **11:15 A.M.–Noon**
  Breakout Sessions #2

- **Noon–1:00 P.M.**
  Awards Luncheon (Regency ABC)

- **1:15–2:00 P.M.**
  Breakout Sessions #3

- **2:15–3:00 P.M.**
  Breakout Sessions #4

- **3:00–3:45 P.M.**
  Refreshment Break / View Exhibits Posters (Riverside Center West)

- **3:00–6:00 P.M.**
  View Poster Sessions (Riverside Center West)

- **3:45–4:30 P.M.**
  Breakout Sessions #5

- **4:30–6:00 P.M.**
  Exhibit Hall Reception / Poster Sessions (Riverside Center West)

**THURSDAY • July 24**

- **7:30 A.M.–1:00 P.M.**
  Registration (outside Regency Ballroom)

- **7:30–8:15 A.M.**
  Continental Breakfast in Exhibit Hall (Riverside Center West)

- **7:30 A.M.–Noon**
  Exhibit Hall Open (Riverside Center West)

- **8:15–9:00 A.M.**
  Breakout Sessions #6

- **9:15–10:00 A.M.**
  Breakout Sessions #7

- **10:00–10:30 A.M.**
  Refreshment Break / View Exhibits (Riverside Center West)

- **10:30–11:15 A.M.**
  Breakout Sessions #8

- **11:30 A.M.–12:15 P.M.**
  Breakout Sessions #9

- **12:30–1:30 P.M.**
  Keynote Luncheon (Regency ABC)

- **1:45–2:30 P.M.**
  Breakout Sessions #10

- **2:30–2:45 P.M.**
  Refreshment Break (Regency Foyer)

- **2:45–3:30 P.M.**
  Breakout Sessions #11

- **3:45–4:30 P.M.**
  Breakout Sessions #12

*Must be present to win prize drawings.*
PRECONFERENCE

MONDAY

7:00 A.M.–6:00 P.M.
Registration (outside Regency Ballroom)

8:00–8:30 A.M.
Continental Breakfast (for morning workshop attendees; Regency A)

8:30 A.M.–Noon

PRECONFERENCE WORKSHOPS
Mobile Device Forensics (Comiskey)
STEAMing Ahead with the Arduino for STEM and Art (Wrigley)
Building and Assessing Your Team (Acapulco)
Edugaming (Toronto)
AMTEC’s Collaborative Methodology (New Orleans)

Noon–1:00 P.M.
Preconference Lunch (for afternoon workshop attendees; Regency A)

1:00–4:30 P.M.

PRECONFERENCE WORKSHOPS
Free Virtual Labs and Curricula for IT and Cybersecurity (Comiskey)
BYOE: Build Your Own E-Book (Gold Coast)
Implementing a Systems Approach to Mechatronics Education (Toronto)
Helping Students Write to Learn in STEM Courses (Water Tower)
Multi-Disciplinary Activities for Emerging Technologies (New Orleans)

Must be registered to attend preconference events.
Preconference Workshops • 8:30 A.M.–Noon

**Comiskey**

**Mobile Device Forensics—Exploring the Forensics Tools for Smart Phones and Tablets**

Mobile devices play a critical role in modern business. However, they also pose a substantial threat to modern information systems. This workshop will show how these devices store and process data. The workshop will include activities designed to demonstrate the threat these devices can present. You will also become familiar with procedures such as system backup, device hardening, and device location.

*John Sands, Kevin Vaccaro*, Center for System Security and Information Assurance (CSSIA), Palos Hills, IL

**Wrigley**

**STEAMing Ahead with the Arduino for STEM and Art**

This presentation will show how the Arduino can become the hub of a STEM program. Attendees are introduced to a method of teaching students how to work with sensors, motors, and more using the Arduino—a powerful open-source controller with far-reaching application possibilities. Participants are introduced to a method of programming that can be used to create interactive control systems that can sense and react. Learn how the Arduino can be used to create everything from automation to art at minimal cost. All attendees are expected to bring their own laptops with the latest version of Java.

*Dorian McIntire, Amanda Orzechowski*, Tri-County Technical College, Pendleton, SC

**Acapulco**

**Building and Assessing Your Team for Effective Process Management**

Participants in this interactive session will learn and understand the impact of group dynamics and communication on the success of process management and improvement activities. They will be exposed to several ideas and tools for effectively building and assessing teamwork. Participants will learn how to evaluate team member behavioral styles and the value of differing styles in team operations. They will also learn to assess team performance and understand optimal team leadership styles for best effect.

*Phil Centonze*, POS-IMPACT LLC, Pembroke Pines, FL

**Toronto**

**Edugaming: Keeping the Quiz Out of Educational Games to Create Effective Learning Environments**

Too many educational games rely on a quiz format. Games excel at having players do the same thing repeatedly, encouraging practice and exploration and thus learning. The approach presented in the "Edugaming Framework" eschews the quiz, facilitating the use of educational content as game play and resulting in engaging and effective educational games.

*Mary Rasley, Steven Weitz*, Lehigh Carbon Community College, Schnecksville, PA

**New Orleans**

**AMTEC’s Collaborative Methodology to Develop State-of-the-Art Curriculum and Establish a Skilled Workforce Pipeline**

The Automotive Manufacturing Technical Education Collaborative (AMTEC) has created a methodology of collaboration that joins industry and education in establishing a skilled workforce pipeline. This model encompasses an integrated process approach to instructional design utilizing business and industry to begin the process by identifying the occupational standards and ends with them creating the assessment and/or certification test while working with faculty to turn the standards into modularized curriculum for flexible implementation. The collaboration also established a national career pathways model that will be shared.

*Stanley Chase, Katherine Manley, Danine Tomlin*, Automotive Manufacturing Technical Education Collaborative (AMTEC), Versailles, KY
Preconference Workshops • 1:00–4:30 p.m.

**Comiskey**

**Implementing Free Virtual Labs and Free Curricula to Teach Information Technology and Cybersecurity**

Participants will learn how to implement virtual labs to support teaching IT and cybersecurity courses, will work through virtual labs, and will learn how to obtain free open-source IT and cybersecurity curriculum. Attendees will receive documentation with links to Internet sources with curricular and laboratory materials.

Ann Beheler, National Convergence Technology Center (CTC), Frisco, TX; Bill Saichek, Orange Coast College, Costa Mesa, CA; Julie Hietschold, Collin College, Frisco, TX; Ernie Friend, Florida State University, Tallahassee, FL; Rich Weeks, Network Development Group (NDG), Research Triangle Park, NC

**Water Tower**

**Helping Students Write to Learn: How to Add Writing to Your STEM Courses and Why It Matters**

Student learning in all disciplines is enhanced through the practice of writing. This workshop will give STEM faculty strategies for including writing activities in their courses. Topics will include the value of writing in STEM disciplines and “writing to learn,” the role of low-stakes writing, developing appropriate writing assignments, and responding to student writing in STEM classrooms. Participants will leave with plans for assignments.

Linda Rubel, Rose Marie Toscano, DeafTEC: Technological Education Center for Deaf and Hard-of-Hearing Students, Rochester, NY

**Gold Coast**

**BYOE: Build Your Own E-Book**

E-MATE, E-books and Mobile Apps for Technician Education, is a three-year NSF ATE project to develop interactive E-books. The E-MATE team is documenting best practices and lessons learned with the goal of creating a framework educators can reference to develop interactive E-books. Macs will be provided.

Mike Qaissaunee, Kelly Parr, Brookdale Community College, Lincroft, NJ; Daniel Hull, National Center for Optics and Photonics Education (OP-TEC), Waco, TX

**New Orleans**

**Multi-Disciplinary Hands-On Activities for Emerging Technologies**

Nanotechnology is an enabling, multi-disciplinary technology. Nano-Link has taken advantage of these characteristics to create educational content that includes nanoscience concepts coupled with biotechnology, water purification, materials science, and photonics. Workshop participants will perform the activities and experiments that accompany four new interdisciplinary modules.

Deb Newberry, Billie Copley, Nano-Link, Rosemount, MN; Jeanette Mowery, Lisa Seidman, Bio-Link, San Francisco, CA; Kim Grady, National Resource Center for Materials Technology Education (MatEd), Lynnwood, WA
The National Science Foundation’s grant support for two-year colleges in the Division of Undergraduate Education (DUE) and the Division of Research on Learning in Formal and Informal Settings (DRL)

Advanced Technological Education (ATE) centers and projects offer new materials, exemplary methods, and professional development.

Information Technology Experiences for Students and Teachers (ITEST) increases the STEM capacity in the STEM professional sector of the U.S. workforce by targeting K-12 students and teachers.

STEM-C PARTNERSHIPS: MSP seeks to improve student outcomes in math and science for all students at the K-12 level.

Robert Noyce Teacher Scholarship Program (Noyce) provides funds to post-secondary institutions to support scholarships, stipends, and academic programs for STEM majors and professionals to become K-12 teachers.

Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) supplies scholarships for academically talented, financially needy STEM students.

Improving Undergraduate Education in STEM (IUES) supports research and development leading to and propagating interventions that improve both the quality and quantity of STEM graduates.

SBIR/STTR Phase II-CC Supplements
The NSF has supplemental funding available to support these kinds of partnerships between small businesses (with active SBIR funding) and community colleges. There are supplements available to support internships by college instructors (RET), student internships (REU, VRS), and phase II CC supplements to support partnerships.
www.nsf.gov/eng/iip/sbir/Supplement

National Science Foundation
WHERE DISCOVERIES BEGIN
Visit www.nsf.gov
South Carolina Advanced Technological Education (SC ATE) Center of Excellence

Teaching Technicians
Connecting educators to NSF ATE faculty development with individualized alerts. Providing information and assistance for educators to advance technician education.
www.TeachingTechnicians.org

Mentor Connect
Providing leadership development and outreach with mentoring support for prospective and funded ATE grantees.
www.Mentor-Connect.org

SC ATE
Offering strategies & resources to educators & industry to increase the quantity, quality & diversity of technicians in industrial & engineering fields.
www.SCATE.org

SC ATE National Resource Center for Expanding Excellence in Technician Education:
Advancing Faculty Development and Program Improvement (NSF DUE #1003733)
Mentor-connect: Leadership Development and Outreach for ATE (NSF DUE# 1204463)

Elaine Craft
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There is a need for a person who installs, upgrades or maintains the software, hardware or material handling equipment which supports the supply chain; The National Center for Supply Chain Technology Education is helping us meet this need."

Phil Jones, Senior Project Manager for Distribution Engineering & Facilities, Vendor Relations - Target Corporation

www.supplychainteched.org
The National Center for Optics and Photonics Education

**Information**
Photonics Technology
Technician Careers

**Technical Assistance**
Program Feasibility and Planning
Curriculum Design and Development
Laboratory Design

**Professional Development and Training**
Program Planning Workshops
Online Faculty Development Courses
Online Technician Education Courses

**Resources**
National Photonics Skill Standards for Technicians, 3rd Ed.
National Precision Optics Skill Standards for Technicians, 2nd Ed.
Program Planning Guides for infusing photonics into . . .
  - Manufacturing Technology
  - Biomedical Applications
  - Homeland Security
  - High School STEM & CTE Programs
  - Optoelectronics
  - Telecommunications

**Curriculum Materials**
Fundamentals of Light and Lasers (2013)
Laser Systems and Applications (2014)
Precision Optics Series (2013)
Mathematics for Photonics Technicians
Modules in Photonics Enabled Technologies:
  - Manufacturing
  - Environmental Monitoring
  - Biomedicine
  - Forensic Science and Homeland Security
  - Optoelectronics
  - Nanotechnology

**OP-TEC Partner Colleges**

Career information for parents and students

www.op-tec.org
WIN A 2015 HI-TEC CONFERENCE REGISTRATION
“BEST SELFIE” WINNERS will be announced at the Thursday, July 24, 2014 keynote luncheon

IT'S AS EASY AS 1,2,3

1. TAKE A SELFIE DURING HI-TEC

2. POST THE PHOTO TO YOUR FACEBOOK PAGE. USE THE HASHTAG
   “#HI-TECSELFIE2014” or send by email to selfie@highimpact-tec.org

3. HAVE FUN. REMEMBER THE MORE TIMES YOU SUBMIT, THE BETTER
   CHANCE YOU HAVE OF WINNING!

*All photos submitted may be used by HI-TEC for promotional purposes
HiTEC

TUESDAY

7:00 A.M.–6:00 P.M.
Registration (outside Regency Ballroom)

8:00–8:30 A.M.
Continental Breakfast (for workshop attendees; Regency A)

8:30 A.M.–Noon
Preconference Workshops
Malicious Documents and Memory Forensics (Comiskey)
Practical Malware Analysis: Hands-On (Wrigley)
Design Systems Fast With the New NI myRIO and NI LabVIEW (Gold Coast)
Implementing a Supply Chain Technology Program (Water Tower)
STEM for Biotech and Nanobiotech Education (Toronto)
Preparing and Submitting Proposals to the NSF (Acapulco)

Noon–1:00 P.M.
Lunch on Your Own

Preconference Tours
1:00–5:00 P.M. The Plant
(Board bus at 12:15 in front of West Tower; lunch provided.)
1:00–4:00 P.M. Equinix Chicago Data Center
(Board bus at 12:15 in front of Hyatt on Wacker Dr.; lunch provided.)
1:00–3:00 P.M. Chicago Deep Tunnel Project
(Board bus at 12:15 in front of Hyatt on Wacker Dr.; box lunch provided.)
1:00–5:00 P.M. UPS—The Chicago Area Consolidation Hub
(Board bus at 12:15 in front of West Tower; box lunch provided.)

Must be registered to attend preconference events.
**Malicious Documents and Memory Forensics**
The rise of malicious documents (PDF, MS Word) has created a serious security challenge. This workshop will show how to guard against security breaches.

*INSTRUCTIONS:* Download and install VMware Workstation 10, VMware Fusion 6.0, or VMware Player 6.0 or higher (30-day trial available). VMware Player does not need a commercial license. HARDWARE REQUIREMENTS: 64-bit Intel® x64 2.0+ GHz processor or higher recommended (64-bit mandatory); 4GB RAM minimum (8GB+ recommended). USB 2.0 or higher port(s); 100 GB free drive space. Local administrator access within host operating system. *A few virtual labs will be provided.*

*Israel Aladejebi*, Century College, White Bear Lake, MN

**Practical Malware Analysis: Hands-On**
Modern tools enable analysis and removal of malicious software. Attendees will perform projects analyzing safe malware samples and learn about free online teaching materials. Bring your own laptop with VMware Player or Workstation installed, and 10GB free disk space.

*Sam Bowne*, Mid-Pacific ICT (MPICT) Center, San Francisco, CA

**Design Systems Fast With the New NI myRIO and NI LabVIEW**
This workshop is for educators in controls, mechatronics, robotics, and embedded systems who are interested in industry standard tools that improve student achievement. Attendees will learn how to use embedded technology to teach engineering concepts. NI myRIO is an embedded hardware device designed for developing real, complex engineering systems in less than a semester.

*Mark Walters*, National Instruments, Austin, TX

**Best Practices in Implementing a Supply Chain Technology Program**
What do mechatronics/industrial engineering programs have in common with supply chain technician training—about 90 percent of the same coursework! Attendees will learn about resources that can be added to mechatronics/industrial engineering programs and hear ideas for building stackable technician certificates, teaching technical training, and recruiting/retaining students.

*Erika Bowles, Mel Cossette*, National Center for Supply Chain Technology Education, Norco, CA

**STEM for Biotech and Nanobiotech Education: Cost-Effective Approaches for Educators and Students**
Biotech and nanobiotech are STEM-based fields with huge potential for high-paying careers. The presenters will share experiences and resources that have allowed thousands of students and hundreds of teachers to realize the value of education in these fields—without financial strain.

*Mrunalini Pattarkine*, Harrisburg University of Science and Technology, Harrisburg, PA; *Robert Ehrmann*, Nanotechnology Applications and Career Knowledge (NACK) Network, University Park, PA

**Strategies for Preparing and Submitting Competitive NSF Grant Proposals**
Learn about the trajectory of an NSF grant proposal from inception to award. Topics will include elements of competitive proposals and the National Science Board’s review criteria of Intellectual Merit and Broader Impacts.

*David Brown, John Krupczak, Celeste Carter*, National Science Foundation, Arlington, VA
The Plant

1:00–5:00 p.m. (Board bus at 12:15 in front of West Tower; lunch provided.)

The Plant—a new kind of organization in a very old building—demonstrates what truly sustainable food production and economic development look like by farming inside an old meatpacking facility, incubating small craft food businesses, brewing beer and kombucha, and doing it all using only renewable energy that is made onsite. By connecting outputs of one business to the inputs of another, the Plant is harnessing value from materials that most people would throw away. (http://www.plantchicago.com/)

Equinix Chicago Data Center

1:00–4:00 p.m. (Board bus at 12:15 in front of Hyatt on Wacker Dr.; lunch provided.)

Located in the middle of downtown Chicago, Equinix International Business Exchange™ (IBX®) is part of the country’s largest network of cloud computing server centers. The facility offers much more than state-of-the-art carrier-neutral co-location space and carrier-dense interconnections. IBX Data Centers are home to an increasing number of large enterprises, as well as digital ecosystems for cloud, mobility, content and financial services. (http://www.equinix.com/locations/united-states-colocation/chicago-data-centers)

Chicago Deep Tunnel Project

1:00–3:00 p.m. (Board bus at 12:15 in front of Hyatt on Wacker Dr.; box lunch provided.)

The Chicago Deep Tunnel Project, also known as Tunnel and Reservoir Plan (abbreviated TARP), is a large civil engineering project that aims to reduce flooding in the metropolitan Chicago area, and to reduce the harmful effects of flushing raw sewage into Lake Michigan by diverting storm water and sewage into temporary holding reservoirs. It is one of the largest civil engineering projects ever undertaken. Commissioned in the mid-1970s, the project is managed by the Metropolitan Water Reclamation District of Greater Chicago. Completion of the system is not anticipated until 2029, but substantial portions of the system have already opened and are operational. Across 30 years of construction, over $3 billion has been spent on the project. (http://www.mwrd.org/irj/portal/anonymous/tarp)

United Parcel Service – The Chicago Area Consolidation Hub

1:00–5:00 p.m. (Board bus at 12:15 in front of West Tower; box lunch provided.)

The Chicago Area Consolidation Hub (CACH) is a package sorting hub for United Parcel Service. Located approximately 15 miles southwest of downtown Chicago, the facility is in two municipalities. Five-sixths of the UPS properties lie within the Village of Hodgkins, Illinois, with one-sixth being situated in the neighboring Village of Willow Springs. All of its fire, police, and infrastructure are attached to Hodgkins. This facility serves as a central sorting facility for packages traversing the country and internationally. Construction of the CACH facility began in November 1991 at the site previously occupied by the GM Truck and Bus manufacturing plant. The facility has an area of 48.9 acres (198,000 m²), and has a perimeter of 3.1 miles (5.0 km). It employs over 8,000 people across four shifts. (http://www.upslocations.net/illinois/hodgkins/ups-cach-facility-57092/)
Working Connections events offer cutting-edge, cost-effective professional development that provides you with the expertise needed to teach the most in-demand technology topics.

Join us every summer at one of the three regional events!

And don’t miss our annual winter workshop in Texas. Save the date!

**NORTH • TEXAS • SOUTH**

**Winter Working Connections**
December 15 - 17, 2014
Frisco, TX

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The Convergence College Network (CCN) connects you with IT educators from colleges around the nation as well as with resources that will enhance your IT program. Become a part of the CCN and enjoy access to:

- Robust network of innovative leaders who share instructional resources, strategies and materials
- Fully developed curriculum
- Free professional development with partial travel reimbursement
- Shared online technology resources such as virtual labs

**COMMUNITY**

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Our National Business and Industry Leadership Team (BILT) provides the CCN with information on the current IT job market and emerging technology trends. Their unique insight identifies the essential knowledge, skills and abilities that students must possess to get hired and guides curriculum development.

If your IT program is not “owned” by the businesses that are hiring graduates, consider taking your existing advisory council to the next level by downloading our “step-by-step guide” to creating your own successful BILT.

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**LEADERSHIP**

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Get Connected!


**National Convergence Technology Center**

This material is based upon work supported by the National Science Foundation under Grant No. 1205077. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
BATEC is the NSF ATE National Center of Excellence for Computing and Information Technologies.

Our academic partners in Boston, Chicago, Las Vegas and San Francisco collaborate on projects to:

- Create authentic, industry-guided curriculum in emerging fields
- Design and implement programs that build awareness and increase interest in computing pathways and careers
- Conduct and disseminate actionable research into workforce requirements and labor market trends

| Empathic Approaches to Engaging Students | Mid-Pacific ICT Center |
| Wednesday, 10:15 to 11:00 |

| Finding and Fixing Security Problems | City College of San Francisco |
| Wednesday, 1:15 to 2:00 |

| Fast-Track, Stackable Credentials | Bunker Hill Community College |
| Wednesday, 2:15 to 3:00 |

| Aligning Programs with Employer Needs | City Colleges of Chicago |
| Wednesday, 3:45 to 430 |

| Computational Thinking via Scenario Learning | BATEC |
| Thursday, 8:15 to 9:00 |

| Adventures in Open Source | City Colleges of Chicago |
| Thursday, 2:45 to 3:30 |
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WHO IS Nano-Link?

WE ARE WORKING TO SUPPORT THE CREATION OF NANO SCIENCE TECHNICIANS AND THE INTEGRATION OF NANOTECHNOLOGY CONCEPTS INTO: INDUSTRY • COLLEGE AND HIGH SCHOOL EDUCATION

Complete courses and over 20 activity-based modules that include:
- LECTURE MATERIAL
- BACKGROUND INFORMATION
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Nano-Link Center for Nanotechnology Education
www.nano-link.org
**7:00 A.M.–5:00 P.M.**
Registration *(outside Regency Ballroom)*

**7:45–8:30 A.M.**
Continental Breakfast *(Regency ABC)*

**8:30–9:45 A.M.**
Opening and Keynote Presentation *(Regency ABC)*

**9:45–10:15 A.M.**
Refreshment Break / View Exhibits
*Prize Drawing 10:00 *(Riverside Center West)*

**9:45 A.M.–6:00 P.M.**
Exhibit Hall Open *(Riverside Center West)*

**10:15–11:00 A.M.**
1A Transitioning Adult Learners Into IT Careers *(Toronto)*
1B Data From Micro-Machine Pressure Sensors *(Acapulco)*
1C We Can’t Leverage What We Don’t Recognize *(Comiskey)*
1D NEATEC Learning Module Use and Impact *(Wrigley)*
1E The Controversy Over Contextual Math *(Water Tower)*
1F Technician Entrepreneurs and Social Media *(Hong Kong)*
1G ATE and TAACCCT Part I *(Gold Coast)*

**11:15 A.M.–Noon**
2A Bridging the (Cybersecurity Tech Skills) Gap *(Toronto)*
2B Lasers Touch All Fields *(Acapulco)*
2C Cross Program Curriculum Development *(Comiskey)*
2D Intrusive Advising *(Wrigley)*
2E Applied Copyright *(Water Tower)*
2F Robots in Technical Education *(Hong Kong)*
2G ATE and TAACCCT Part II *(Gold Coast)*

**Noon–1:00 P.M.**
Awards Luncheon *(Regency ABC)*

**1:15–2:00 P.M.**
3A Security Problems at Colleges *(Toronto)*
3B 3D Printing in STEM Curriculum *(Acapulco)*
3C Funding Opportunities at NSF *(Comiskey)*
3D Not Your Father’s E-book *(Wrigley)*
3E Building Enrollment Through HS Pipelines *(Water Tower)*
3F 28%: What’s Your Number? *(Hong Kong)*
3G Changing Tech/Academic Curriculum *(Gold Coast)*

**2:15–3:00 P.M.**
4A Stackable Credentials: Fast-Track Options *(Toronto)*
4B Leveraging Digital Fabrication *(Acapulco)*
4C Selling Your Emerging Technology Program *(Comiskey)*
4D Internet of Things and Cyber-Physical Sys Techs *(Wrigley)*
4E Teaching Physical Systems/SCADA Security *(Water Tower)*
4F Evaluation in Successful ATE Proposals *(Hong Kong)*

**3:00–3:45 P.M.**
Refreshment Break / View Exhibits
*Prize Drawing 3:20 *(Riverside Center West)*

**3:00–6:00 P.M.**
View Poster Sessions *(Riverside Center West)*

**3:45–4:30 P.M.**
5A Test Drive Using NDG’s NETLAB+ *(Toronto)*
5B After the Assoc. Degree: Multi-Axis Machining *(Acapulco)*
5C Status, Role, and Needs of US Eng Tech Ed *(Comiskey)*
5D Implementing MS Private Cloud Technology *(Wrigley)*
5E The Value-Creation Evaluation Framework *(Water Tower)*
5F NanoExperiences: Helping HS Students *(Hong Kong)*
5G College to Careers at CCC *(Gold Coast)*

**4:30–6:00 P.M.**
Exhibit Hall Reception / Poster Sessions
*Prize Drawing 5:00 *(Riverside Center West)*

*Must be present to win prize drawings.
Robotics to Reach Out and Change the World

Robotics is poised to be a groundbreaking and disruptive technology. Robotics will transform society in the next 40 years the way computing has transformed it over the last 40 years. Robotics is the next evolution, taking technology beyond digital information into performing real tasks in the physical world. Through robotics, we can erase the geographic barriers that limit us in our work, play, education, and so much more.

Even with such amazing innovation at hand, we face major challenges in producing an equitable workforce prepared for this future. The unfortunate fact of computing is that it has contributed to the increasing trends of inequity. Robotics, if not pursued wisely, has the potential to accelerate this trend. However, robotics also presents an opportunity to reverse these trends. Specifically, we can enable everyone across the socioeconomic spectrum to maximize their “computational literacy,” the basic means of expression in this technological world. The knowledge and tools to gain, extend, and practice computational literacy have never been so accessible, available, and free. The common web browser, in particular, provides almost everything needed to learn modern computer programming and enter a pathway of infinite technological potential.

In this talk, Chad will present his work in bringing robots out of research laboratories and into the real world through the World Wide Web. This work includes using the web to make a wide variety of robots accessible and programmable to researchers, educators, and the physically disabled. He will further describe how the JavaScript programming language and HTML5 markup language can be used to develop courses for computer programming, with an emphasis on video games, physical simulation, and robotics.

Chad Jenkins is Associate Professor of Computer Science at Brown University. He is primarily interested in the development of methods for autonomous control and perception through leveraging human performance from the real world. His work furthers the idea that robot control and computational perception are better learned from human demonstration rather than explicit computer programming.

His previous efforts were mostly geared towards humanoid robotics with respect to learning primitive behaviors for robot control through imitation. More generally, he addresses perception, control, and learning issues at the intersection of robotics, computer vision, computer animation, machine learning and interactive systems.
Sessions • 10:15–11:00 A.M.

1A Toronto

Transitioning Adult Learners Into Information Technology Careers

This session will cover the experiences, lessons learned, and outcomes from the educational institution involved with the Capital Area Tech Knowledge ePathways program. The ePathways program is the product of a $4.4 million H1B Department of Labor grant intended to help unemployed and underemployed individuals contribute to and benefit from regional IT growth. This is a career-transition program designed to support individuals along computer science, programming, and software testing academic tracks and into careers in IT. Local workforce development agencies, business and industry, and higher education all partner to meet the program’s outcomes.

Sarah Linz, Rebecca Sowa, Lansing Community College, Lansing, MI

1B Acapulco

Usable Data From Micro-Machine Pressure Sensors via Electronic Circuits

The presenter will demonstrate a SCME kit and enable participants to interact with it. The kit will include an introduction to op-amps, difference amplifiers, and low-cost commercial MEMS [micro-machine] based pressure sensors. This session is geared to teachers with little or no familiarity with electronics circuits or MEMS. Attendees will be led through simple operational amplifier theory and application and an introduction to MEMS based pressure sensors. The end result will include the theory and operation of an op-amp based difference amplifier, which will be interfaced to the commercial MEMS [micro-machine] based pressure sensors.

Fabian Lopez, SCME, Albuquerque, NM

1C Comiskey

We Can’t Leverage What We Don’t Recognize: Empathic Approaches to Engaging URM Students

This interactive session will explore how faculty self-awareness and social intelligence enable faculty to go beyond potentially erroneous labels by nurturing curiosity about underrepresented minority (URM) students and recognizing the assumptions and prejudices that block them from seeing ways to connect and inspire. Doing so helps to build the confidence and perseverance that students facing multiple barriers to success must possess to better deal with challenges and overcome those barriers. Participants will be introduced to research on practices for perspective taking and the development of empathic curiosity for recognizing and leveraging student goals and passions to support their self-direction.

Olivia Herriford, Mid-Pacific ICT (MPICT) Center, San Francisco, CA

1D Wrigley

NEATEC Learning Module Use and Impact

A NEATEC Learning Module (NLM) is a self-contained unit that can be incorporated into existing grades 9-12 science, math, and technology lessons to supplement and enhance existing materials. These modules, in their pilot phase, are in use at four high schools with approximately 100 students participating. They include topics on nanotechnology, semiconductors, photovoltaic, alternate energy, mathematics, general science, and technology. Each module includes background information about the topic, a teacher guide, a student guide, a kit of lab materials for laboratory activities, a list of teacher and student resources, and PowerPoint slides. This session will focus on module impact inside and outside of the classroom and how others can use them to meet regional business and industry needs.

Nozomi Nakayama-Ratchford, Ryan Munden, NEATEC, Troy, NY
10:15–11:00 A.M. Sessions (continued)

1E Water Tower

The Controversy Over Contextual Math: A Struggle for Students and Educators

Math is often a barrier for our students and a source of failure. But the majority of students can perform basic math calculations. Their problem is that they cannot apply math in a contextual setting. This session will begin by looking at a provocative report from the National Center on Education and the Economy that shows a profound disconnect between the math taught in high schools and the math required in the workplace. What does this mean for us?

Jeanette Mowery, Lisa Seidman, Bio-Link, Madison, WI; Thomas Tubon, Madison Area Technical College, Madison, WI

1F Hong Kong

Technician Entrepreneurs—Using Social Media to Build a Business Brand and Network

To succeed in today’s highly competitive, technology-driven world, businesses recognize social media as a powerful tool used to establish a business “brand” and develop supplier/customer networks. Many graduates of technician education programs, at some point, start their own businesses. Learning to use social media for these purposes can advantage our students’ workplace success. In this session participants will review online problem-based lessons that include step-by-step activities, tutorials, and instructional resources aimed at building students’ capacity to use social media to build their businesses. Lessons can be integrated into technician education programs as classwork, homework, or semester or culminating projects.

Joyce Malyn-Smith, EDC, Waltham, MA; Gordon Snyder, ICT Center, Springfield, MA; Dave Sweeney, Viz-bang, Springfield, MA

1G Gold Coast

A Common Vision for Workforce Preparation and Education: Part One – ATE VS TAACCCT

Will continue at 11:15

This special focus session is produced by HI-TEC. The National Science Foundation and more recently the Department of Labor have had an important impact on technician education and workforce preparation at America’s community colleges. Over 90% of awarded community colleges have had both ATE (Advanced Technological Education) funding from the NSF and TAACCCT (Trade Adjustment Assistance Community College and Career Training) support from the Department of Labor. In part one of this session we explore the goals and vision of these programs and highlight success stories. This will be followed by a debate and frank discussion with the theme, “Can these programs ever work together—and should they?”
Bridging the (Hands-on Cybersecurity Technical Skills) Gap Between Graduates and Industry: Best Practice With Proven Results

Cybersecurity is a national issue recognized all the way to the level of the President. There is a need for as many as 30,000 people with these skills while colleges only produce 1000, according to a report from the Center for Strategic & International Studies (CSIS). This crisis led us to implement steps that produce a phenomenal result: nearly 98 percent job placement for new graduates in this field. We called this program “BDE”: Broad, Deep and Engaging. The adoption of cloud-based technology to provide hands-on labs to simulate a real-environment, adoption of national certification as part of the assessment for selected course, and an effort to attract women and minorities proved to be very successful.

Israel Aladejebi, Century College, White Bear Lake, MN

Lasers Touch All Fields: Latest Laser Developments and New Laser Applications

Growth in development of new laser types and novel laser applications during the last few years has been near exponential. Almost every day either a new type of laser or application is announced. This presentation will explore some of these exciting new laser types and applications. We will explore how lasers touch almost any imaginable technology field. Areas of coverage include medical, dentistry, energy, semiconductor processing, security and defense, telecommunications, bio-technology, materials processing, and manufacturing. LASER-TEC Co-PI Gary Beasley will talk about laser applications for depth sensitivity using Raman spectroscopy in optical coherence tomography (OCT). Curriculum development in this area is under way at Central Carolina Community College. LASER-TEC PI Chrys Panayiotou will talk about femtosecond lasers and their application in medical devices.

Chrys Panayiotou, LASER-TEC, Fort Pierce, FL; Gary Beasley, LASER-TEC, Lillington, NC

Cross Program Curriculum Development, Student Internships, and Game Design: A Case Study

In 2011, Lansing Community College was awarded an NSF grant titled “Career and Educational Pathways in Building Science.” After two years of DACUM panels and industry advisory committee meetings, a team of educators set out to build a curriculum spanning more than four college programs involving “green building” concepts. This curriculum is 100 percent digitally delivered using a 3D game world to house over 60 lessons and activities. Parts of the software were developed by students in the college’s IT program as an internship experience. This session will discuss how the process went and why simulations can be a cost saver, increase retention, and augment the online and face-to-face learning environments.

Sean Huberty, Aaron Mundale, Sean Nagler, Lansing Community College, Lansing, MI

Intrusive Advising: The Holy Grail of At-risk Student Retention?

In 2011, the J.A. & Kathryn Albertson Foundation (JKAF) funded a three-year Continuous Enrollment (CE) Initiative in response to the growing workforce job skills gap in Idaho and the urgency of meeting the postsecondary needs of unconventional students—those working on their GEDs and those from alternative high school programs. The goal was to measurably increase access, retention, and completion for these students. Progress data collected measured student achievement benchmarks including the percentage of credits earned, GPA, credential goal completion, and continuing enrollment.

Amy Christensen, Nancy Lauts, Lawrence Beaty, Idaho State University, Pocatello, ID
11:15 A.M.–Noon Sessions (continued)

2E Water Tower

Applied Copyright: Find and Use Relevant Digital Media
The Internet is full of compelling images, video, and sound, but how do we gain confidence using them properly in our projects? A painless guide to finding media! You will learn about sites that already say YES to use, so you don’t have to stress about copyright infringement. Join in an entertaining hands-on session where you can learn about copyright law and fair use and find sites that offer public domain and Creative Commons content.

Barbara Waxer, Santa Fe Community College, Albuquerque, NM

2F Hong Kong

Rethinking How Robots Can Be Used in Technical Education and Student Recruiting
This hands-on session will showcase an entirely new type of interactive robot that is redefining the way robots can be used in manufacturing environments and as a highly effective recruiting tool. The latest robots perform a variety of repetitive production tasks—all while safely and intelligently working next to people (without cages!). These robots exhibit behavior-based common sense and are capable of sensing and adapting to their task and environment. They require no complex programming or costly integration.

Ernie Friend, Florida State College, Jacksonville, FL; Reina Ellis, Chris Harbert, Rethink Robotics, Boston, MA

2G Gold Coast

A Common Vision for Workforce Preparation and Education: Part Two – ATE AND TAACCCT
Continued from 10:15
This special focus session is produced by HI-TEC. The National Science Foundation and more recently the Department of Labor have had an important impact on technician education and workforce preparation at America’s community colleges. In part two of this session we look for the crossover points and opportunities. Certainly evaluation and impact measures and metrics offer challenges for both programs. Experienced evaluators and project personnel present their insights and with feedback from session participants. Teams will work to identify opportunities for synergy and discuss sustainability for these programs after the inevitable end of the grant funding support. Join this session to discover what really can work and what is possible in the future for workforce preparation and technician education.
Awards Luncheon  
*Wednesday, Noon–1:00 p.m., Regency ABC*

**Educator of the Year Award**

*Recipient: Daniel Horine, AAS Mechatronics, Virginia Western Community College*

Dan Horine developed and implemented the Mechatronics Systems Engineering Technology AAS Degree at Virginia Western. Dan was also instrumental in the creation of the first Regional Academy for Advanced Technology, a college-based dual enrollment program for high school juniors and seniors, designed to build the essential knowledge and skill set for students interested in Mechatronics. Dan has built synergy between industry, community college faculty, and secondary CTE to build a seamless pathway in Mechatronics. Through his industry partnerships, he incorporated an internship program in the Mechatronics Associate Degree that has placed many graduates into full-time positions. Dan also provides on-campus exploration opportunities for elementary and middle school students and serves as coordinator for an annual Technology Summit for high school sophomores and juniors.

In 2012, Dan was awarded the college’s first solo NSF grant for the Engineering of Engineering Technicians (E²T) project. As a result of this project, he has successfully implemented professional development activities, significantly enhanced the instructional capacity of both college and secondary CTE faculty, and provided innovative teaching methods that have led to better student engagement and hands-on learning. The Mechatronics program now has over 250 high school students in the Mechatronics pipeline.

**Innovative Program Award**

*Recipient: Vincent A. DiNoto, Jr., National Geospatial Technologies Center of Excellence (Jefferson Community and Technical College)*

The GeoTech Center develops model courses in geospatial technologies, supports efforts to inform the geospatial community of the current and forthcoming shortage of qualified geospatial workers, and encourages promising students to embark on careers in geospatial technologies. A national map of geospatial programs at institutions of higher education, residing on the GeoTech Center website, highlights the vastness of recent programs and the recent increase in institutions that have made geospatial coursework available and have established programs.

The GeoTech Center has established a Community of Practice to link geospatial students and professionals into a single force dedicated to the success of the industry. This is critical, as in 2006 the U.S. Dept. of Labor declared the geospatial technologies sector an “emerging growth industry.” The GeoTech Center took this declaration seriously and made it their mission to carry out the initiatives of the U.S. Dept. of Labor by working with them in 2010 to create the Geospatial Technology Competency Model (GTCM), which has become the standard for employees and employers in the profession in assessing geospatial skills sets and making the geospatial technologies sector a tried and true occupation.
These awards represent HI-TEC’s commitment to recognize industry colleagues, community college faculty, and programs that make significant contributions to the education and training of today’s technology workforce.

## Industry Recognition Awards

**Recipient: Glenn Wintrich**, Dell Services

Glenn Wintrich works with U.S. and European companies to drive business enhancements with innovative IT solutions. He always makes time to support education and has worked with educators for almost 15 years. Glenn was highly involved in the initial focus groups that sought to revive IT education after the “dot com bust” in the early 2000s caused thousands of IT professionals to lose their jobs.

Working with other business leaders, Glenn helped to forecast the knowledge, skills, and abilities (KSA) graduates would need in the future. Collin College used this information in the original regional center proposal, which Glenn assisted in writing.

Glenn has been a member of the CTC BILT since the early 2000s, meeting once a year to update the KSA list against which curriculum is developed and enhanced and three times annually via webinar to help identify trends and review grant progress. He was chair of the BILT for many years and is now chair of the combined National BILT for Networking and Convergence covering both the CTC and the DOL TAACCCT grants.

Glenn challenges educators to offer cutting-edge curriculum so that students are well prepared to attain high-wage employment in the IT industry. He has led numerous teams in their work on special projects.

**Recipient: Phillip Jones**, Target Corporation

Phil Jones has taken an industry leadership role with the National Center for Supply Chain Technology Education (SCTE) since his initial involvement with the Industry Leadership Team (ILT) began in March 2012. With the support of his employer, he has traveled to six states on behalf of SCTE to attend meetings and make industry presentations as an advocate for SCTE. He has connected members of our Project Leadership Team (PLT) and academics from across the country with executives at multiple Target logistics centers.

Under Phil’s direction, Target’s facilities engineering group provided researchers with technician job descriptions, skill set analysis, wage level background, and internal training materials. This information was used as industry input for the development of the Supply Chain Technician “Occupational Profile” (http://www.supplychainteched.org/occupationprofile.html).

Phil has supported SCTE by facilitating numerous student tours of Target facilities. He worked with PLT staff to arrange a meeting and tour for the Norco College administration, which helped improve their understanding of the role of a supply chain technician.

Phil is focused on recruiting engineering talent for Target and developing engineering career paths all the way from college internships to senior management. He serves on Target’s Technical and Engineering Coalition working group and has fifteen years of experience with Facilities/Maintenance and Engineering Management.
Sessions • 1:15–2:00 p.m.

3A Toronto

Security Problems at Colleges: Finding and Fixing Them

How can you improve security at companies that haven’t hired you or given you permission to test their systems? Non-intrusive methods such as Google searches and observing banners can detect serious problems without trespassing on networks. This project is a proof-of-concept for a new type of supervised student exercise in security. The presenter found problems at thousands of websites—including dozens of companies and big-name colleges that are under hostile control—and notified their administrators. Most ignored the notifications, some fixed the problems, and a few complained. This presentation will show how the problems were found, how the administrators were notified, and how they reacted. Such “whitehatting” can be useful and rewarding, as long as you have realistic expectations and a thick skin.

Sam Bowne, Community Colleges of San Francisco, San Francisco, CA

3B Acapulco

Incorporating 3D Printing Into STEM Curriculum

The rapid development and growth of advanced manufacturing methods has led to technologies that can be used in the classroom and beyond to get students excited about manufacturing. This session will focus on how the Regional Center for Next Generation Manufacturing (RCNGM) has used additive manufacturing to take student projects from 3D modeling software to 3D printed prototypes that can be used immediately to show hands-on progress for projects in programs such as the Life Support and Sustainable Living Program (LSSL). Other uses for 3D printing relating to student outreach programs will be explored.

Karen Wosczyna-Birch, Wendy Robicheau, Regional Center for Next Generation Manufacturing (RCNGM), Farmington, CT; John Birch, Life Support and Sustainable Living Program, Farmington, CT; Eric Flynn, Gateway Community College, New Haven, CT

3C Comiskey

Funding Opportunities at the National Science Foundation to Support Undergraduate STEM Education

The National Science Foundation (NSF) provides support for curricular and programmatic innovation in STEM education and research, STEM workforce development, and scholarships for undergraduate students in STEM. This presentation will provide an overview of programs within the NSF Division of Undergraduate Education and elsewhere within NSF that community college STEM educators are encouraged to consider as potential sources of support at their institutions. Information will be presented regarding the missions of various NSF programs, budget criteria, and tips for preparing competitive proposals. Interactive discussion is welcome and encouraged.

David Brown, Celeste Carter, John Krupczak, National Science Foundation, Arlington, VA

3D Wrigley

Not Your Father’s E-book: Leveraging ATE Content to Develop Interactive and Engaging E-books

E-MATE, E-books and Mobile Apps for Technician Education, is a three-year NSF ATE (DUE1205113) funded project to develop interactive e-books and, in so doing, document best practices and lessons learned to ultimately create a framework educators can use with their own content to develop interactive learning objects and e-books. The E-MATE project team will detail its collaboration with the National Center for Optics and Photonics Education and the National Center for Supply Chain Technology Education, available tools and resources, the current state of e-books, and a vision for the future of interactive teaching and learning.

Mike Qaissaunee, Kelly Parr, Brookdale Community College, Lincroft, NJ
Building Enrollment Through High School Pipelines: Lessons Learned from Four Colleges

In 2013–2014, OP-TEC awarded mini-grants to four colleges with photonics programs to support efforts to increase enrollments from high school completers. The scope of work for each grant included initiatives that have been successfully tested at OP-TEC partner colleges including: (1) dedicated high school recruiter (unique qualifications/recruitment strategies); (2) summer camps (for HS teachers and students); (3) Saturday programs on campus; (4) dual-credit courses; (5) employer-hosted events for parents; and (6) career-descriptive materials and activities produced by technical societies in cooperation with OP-TEC. Recruiting strategies from each college will be described, along with issues encountered and demonstrated success. Example materials will be distributed and discussed.

Daniel Hull, OP-TEC, Waco, TX; Larry Fiest, Cincinnati State Technical College, Cincinnati, OH; Mark Hoffman, Maui Community College, Kahului, HI; Brian Sweeney, Northwestern Michigan College, South Boardman, MI; Feng Zhou, Indiana University of Pennsylvania, Freeport, PA

28%: What’s Your Number?

Women receive 28 percent of degrees and certificates in STEM disciplines. Although women represent over 50 percent of the country’s labor force, only 24 percent of employees are women. In identified STEM programs at Asheville-Buncombe Technical Community College (A-B Tech), the number of female students increased from 12 to 18 percent in one year. This session will share strategies A-B Tech implemented for recruiting and retaining both males and females. The session will allow time for discussion of attendees’ ideas.

Pamela Silvers, Steven Marcus, James Sullivan, Asheville-Buncombe Technical Community College, Asheville, NC

Implementing Changes to Technical and Academic Curriculum to Produce Workplace Competent Employees

In our technical education programs, we often release our students with the technical competence to gain employment in specific industries. However, we know (from industry feedback) that employees lose jobs when they lack the communication and professionalism (“soft skills”) required in today’s world of work. This presentation discusses implemented changes to technical and academic curriculum to produce workplace competent employees. We require exceptional communication and professionalism levels in order to prepare our students for success in the workplace and will discuss how to do this in technical and academic courses by providing specific rubrics and activities for attendees.

Analea Brauburger, Mindy Ursino, South Seattle College, Seattle, WA
Sessions • 2:15–3:00 p.m.

4A Toronto

Stackable Credentials: Creating Fast-Track Options for Students

This session examines Bunker Hill Community College’s approach to creating a stackable model for all of its IT programs in information technology and looks specifically at its Cisco Systems CCNA Certificate Program. Under the Broadening Advanced Technological Education Connections (BATEC) grant and the National Information Security and Geospatial Technologies Consortium (NISGTC), the Computer Information Technology (CIT) Department has developed a one-semester CCNA certificate to prepare students to sit for Cisco’s CCNA exam and earn a certificate from the college, all in a one-semester format. The format includes wrap-around services such as test-prep tutoring, course tutoring, career coaching, and job placement services. The model has gained recognition by the college, Boston area one-stop centers, and the Cisco Academy.

Deborah Boisvert, BATEC, Boston, MA; Paula Velluto, Dawn Zapata, Bunker Hill Community College, Boston, MA

4B Acapulco

Leveraging Digital Fabrication in USA Education and Technician Development

There are significant opportunities for and challenges to leveraging digital fabrication, particularly 3D printing, in U.S. education and technician development. The Digital Fabrication Learning Community (DFLC) will describe its development of a community of practice that leverages digital and personal fabrication's proven enrichment of STEM competencies and attitudes while driving advanced technician development in the United States. The global MIT Fab Lab community and DFLC supporting resources will be profiled, with special focus on the alignment of digital fabrication technologies with curriculum and employers.

James Janisse, Fox Valley Technical College, Appleton, WI; Tom Crampton, Mott Community College, Flint, MI; James Hyder, Southwest Center for Microsystems Education (SCME), Albuquerque, NM; Michael Lesiecki, MATEC NetWorks, Phoenix, AZ

4C Comiskey

Selling Your Emerging Technology Program to Your Community and Institution

Rio Salado College has embarked on a path to create a micro/nanotechnology program at a non-traditional institution. This new program in emerging technologies required support from internal, external, and accreditation stakeholders. The presenters will share strategies and lessons learned in building community and institutional support in a complex district system.

Rick Vaughn, Jeannie Ratliff, Rio Salado College, Tempe, AZ

4D Wrigley

The Internet of Things (IoT) Will Create the Need for the Cyber-Physical System Technician

We are on the cusp of another emerging technology paradigm that will affect almost every aspect of our lives. The Internet of Things (IoT) has begun to be deployed with major initiatives involving the electrical grid, automotive transportation systems, and E-health care. Cyber-physical systems will drive the need for a new type of technician that will need interdisciplinary skill sets from the IT, networking, wireless, sensor, and electronics areas. This session will discuss this new technology area, the enabling technologies, and the skill sets needed by technicians charged with the implementation, maintenance, and upgrading of cyber-physical systems.

Gary Mullett, Springfield Technical Community College, Springfield, MA
**4E Water Tower**

**Resources for Teaching Physical Systems/SCADA Security**
This session will introduce resources to teach Physical System/SCADA Security and provide an overview of three courses covering strategies for decreasing or eliminating system vulnerabilities. These courses include Cybersecurity for SCADA Systems, Supervisory Controls and Data Acquisitions Fundamentals, and Supervisory Controls and Data Acquisitions Applications. Participants will receive a resource DVD containing syllabi, presentations, labs, and other resources.

Robert Hamilton, Cyber Security Education Consortium (CSEC), Stillwater, OK; Thomas Pigg, Cyber Security Education Consortium (CSEC), Jackson, TN

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**4F Hong Kong**

**Evaluation: A Key Ingredient for a Successful ATE Proposal**
Evaluation is more than a requirement for National Science Foundation proposals, it’s an essential ingredient for increasing the cohesion and competitiveness of your submission. Developing your proposal with an evaluative perspective can help you avoid common proposal pitfalls, such as writing goals that are either too lofty or too simplistic or failing to demonstrate a logical relationship between your activities and your intended outcomes. In this session, we’ll share tools specifically developed for Advanced Technological Education (ATE) proposers which include a checklist for developing evaluation plans for ATE proposals, a template for creating simple, yet powerful project logic models, and an evaluation plan matrix.

Krystin Martens, EvaluATE, Kalamazoo, MI

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**Refreshment Break / View Exhibits / Poster Sessions**
Riverside Center West • 3:00–3:45 p.m. (Prize Drawing 3:20)
Test Drive the EMC Cloud Infrastructure and Services (CIS) Labs Using NDG’s NETLAB+

“Cloud computing” is a popular buzzword thrown around by industry experts and marketers. A clear understanding of cloud computing is a must for students hoping to enter the ICT workforce. Many schools are looking for curriculum and hands-on labs to equip their students with cloud computing concepts and skills. In this session, NDG will present and demo the NETLAB+ cloud lab libraries that support the EMC CIS course. In addition, EMC will briefly explain how you can adopt the CIS course as a participant of the EMC Academic Alliance program.

Jake Shea, EMC Corporation, Franklin, MA; Rich Weeks, Network Development Group (NDG), Research Triangle Park, NC

Status, Role, and Needs of US Engineering Technology Education: Update on an NAE Study

Calls to improve the U.S. technical workforce often focus on the quality and number of four-year engineering graduates. Less attention has been paid to two- and four-year engineering technology degree holders. A National Academy of Engineering study is exploring the status and needs of engineering technology education. The project will help educators, policymakers, and funders more effectively support the education and hiring of individuals with engineering technology skills. In this session, two members of the study committee and the NAE staff will review the project goals and activities. The panel will seek feedback and answer questions.

Greg Pearson, National Academy of Engineering, Washington, DC; Mel Cossette, National Resource Center for Materials Technology Education (MatEd), Lynnwood, WA; Daniel Hull, The National Center for Optics and Photonics Education (OP-TEC), Waco, TX

After the Associate Degree: Ramping Up to Multi-Axis Machining

The Regional Advanced Machining Partnership (RAMP) has developed eight new credit courses designed to bring high-level skills in CNC programming and operations to central Maine. The Certificate in Advanced Machining offers graduates of associate degree programs in machining and experienced CNC machinists opportunities to continue building their technical skills in a new academic program. A hybrid delivery platform provides incumbent workers the opportunity to take the course around their work hours. This presentation will review the skills gap identified by industry, which determines the core of the advanced skills offered in the certificate. Pilot testing in New England will be done in partnership with the NSF ATE Regional Center for Next Generation Manufacturing (RCNGM) based in Hartford, CT. Dissemination workshops will begin summer 2015 in Maine.

Diane Dostie, Richard Bolding, Central Maine Community College, Auburn, ME; Karen Wosczyna-Birch, Regional Center for Next Generation Manufacturing, Farmington, CT

Implementing Microsoft Private Cloud Technology

Presenters will discuss the implementation of the current Microsoft Private Cloud technology for two courses in an Advanced Certificate in Virtualization/Private Cloud. Our NSF grant meets the needs of the IT community by preparing skilled technicians in the advancing field of the private cloud. Working from the view of the Microsoft Private Cloud Technology, we coordinated Microsoft’s direction with the expectations of IT representatives of the greater San Antonio area. Presenters will detail their experiences in making the leap from industry expectations to performance objectives, which culminated in realistic lab activities.

Ron Carswell, Shen Jiang, San Antonio College, San Antonio, TX
3:45–4:30 p.m. Sessions (continued)

5E Water Tower

The Value-Creation Evaluation Framework Applied—Case Studies and a Template

The presentation will provide participants with a template for building an evaluation plan based on the identification of immediate, potential, applied, and realized value. To reinforce the concepts and template, the presenters will demonstrate a case study for how SCME has applied the Value-Creation Evaluation Framework. Participants will use the template to evaluate the effectiveness of an activity that everyone can universally relate to, and then apply it to their own project or center activities.

James Hyder, David Hata, Southwest Center for Microsystems Education, Albuquerque, NM

5F Hong Kong

NanoExperiences: A Program to Help High School Students to Higher Education and Onto a Career Path

NanoEx is an out-of-school program preparing high school career and technical education (CTE) students for postsecondary learning leading to participation in the STEM workforce! We focused on inspiring the next generation of nanotechnicians, but our session will focus on sharing the lessons we have learned from the development and scale-up of the program in ways that may apply to yours. Join us!

Sandra Weeks, McREL, Denver, CO

5G Gold Coast

College to Careers at City Colleges of Chicago: Aligning Community College PGMs with Employer Needs

In 2011, under Mayor Rahm Emanuel’s leadership, City Colleges of Chicago launched College to Careers, an initiative that partners City Colleges faculty and staff with industry experts to better prepare students for careers in growing fields, especially those high demand and technical fields for which employers in the region face a skills gap. This session will present College to Careers as a case study for how a community college system is employing sector strategies, labor market data, employer engagement, and structured pathways to prepare students to succeed across industries.

Meredith Sparks Ament, Charles Ansell, City Colleges of Chicago, Chicago, IL
Embedding General Education Outcomes into CTE Programs
President Obama recently challenged community colleges to increase the number of students completing associate degrees. However, with community colleges operating at capacity and most career students reluctant to venture into the realm of academics, this can be a daunting task. The College of Lake County, the Illinois Green Economy Network, and 17 Illinois community colleges received a Department of Labor grant to increase access to underserved populations. One of the initiatives for the grant is to increase completion by embedding general education outcomes into CTE programs. This session will highlight our accomplishments and the pitfalls we encountered.

Allan Levandowski, College of Lake County, Grayslake, IL

Using Students to Create Interactive Simulations for College Courses
Three grant-funded projects used students in IT-related programs to make simulation-style games. These students work alongside Lansing Community College employees and instructors to create games that train students in other technical careers such as hybrid automotive mechanic, energy engineer, and surgical technician. They learn valuable skills in the process such as programming, 3D art and design, and web design.

Sean Huberty, Aaron Mundale, Sean Nagler, Lansing Community College, Lansing, MI

Convergence Technology Students Present a New Perspective
Representative student projects from three CTC Convergence College Network (CCN) programs around the country will present this poster session. The projects presented will offer a representation of research, problem-based learning projects, and an overview of current career opportunities in the information communications technology space.

Ramon Alvarez, Georgia Southern University, Statesboro, GA; Chelsea Fitzgerald, Collin College, Frisco, TX; Tim Savala, El Centro College, Dallas, TX

Remotely Accessible Virtual Machines Using Existing Computer Labs
Virtual machines can be great instructional tools, but the resources for running virtual machines can be demanding, requiring either significant hardware investment for the student or server infrastructure for the educational institution. This project uses existing computer lab workstations to host virtual machines when in-person classes are not in session. This session will provide the resources and instructions necessary to make this happen at your institution.

Harry Bulbrook, Lee Rogers, Durham Technical Community College, Durham, NC
Poster Sessions (continued)

Leveraging NSF-ATE LIGHTES Through Student and Community Engagement
Leading Innovation through Green High Tech Engineering and Sustainability (LIGHTES), an ATE project at Suffolk County Community College, focuses on developing an engineering technology concentration in solar PV and embedding energy and sustainability concepts in math and science courses. The session focuses on the student internships and their activities.

Peter Maritato, Nina Leonhardt, Suffolk County Community College, Selden, NY

3D Printing for the Classroom
This session will illustrate how students can take 3D renderings and create 3D printed prototypes. Having students design, print, and test prototypes allows for troubleshooting designs without the wait, leading to improved program results. Methods for incorporating the technology, examples of student projects, 3D printing resources, and faculty feedback will be discussed.

Karen Wosczyna-Birch, Wendy Robicheau, Regional Center for Next Generation Manufacturing (RCNGM), Farmington, CT; John Birch, Life Support and Sustainable Living Program, Farmington, CT; Eric Flynn, Gateway Community College, New Haven, CT

Promulgating SCME Resources Globally Through the Web
The Southwest Center for Microsystems Education (SCME) offers a wide selection of educational resources on the web. Come learn from us and discuss options for producing a website at no cost, complete with document management plugins, streaming videos, online distance learning offerings, and even a kit-order store.

Matthias Pleil, Southwest Center for Microsystems Education (SCME), Albuquerque, NM

Recruiting Girls to STEM Careers
The Florida Advanced Technological Education Center of Excellence (FLATE) has a special initiative for recruiting young girls into STEM courses and careers. The program began in June 2013 with an intensive all-day educator workshop. Attendees developed implementation plans for programs in their schools, using the strategies learned at the workshop. This poster will cover the details of the workshop content, its activities, and outcomes.

Marilyn Barger, FLATE, Tampa, FL

Integrating Design-Based Learning and Web-Based Tools in STEM/CTE
Teachers from the ST4STEM (Student and Teacher Technology Transformation Teams in STEM) Project will share their experiences in integrating design-based learning and information communications technology (ICT) in their classrooms. They will discuss the challenges in transforming STEM/CTE pedagogy and the advantages of encouraging creativity, critical thinking, communication, and collaboration in the classroom. This poster session will be an opportunity to discuss how students can utilize the design process and web-based technology tools to solve current and local real-world problems.

June Yoon, Maricopa Community Colleges, Tempe, AZ; Marissa Boomgaard, Mesa Distance Learning Program, Mesa, AZ; Susan Rodriguez, Whiteriver Unified School District, Pinetop, AZ; Bob Treichel, Maricopa Community College, Yucca, AZ

Voices of Successful Women in ATE Education: Counter Narratives
This session summarizes research designed to understand the experiences of women who succeed in ATE programs in community colleges. Specifically, how do women in community college ATE STEM programs describe constraints and facilitators to their success? Three critical constructs were identified: science identity, self-efficacy, and a social support system. The paper also identifies three paired constructs that negatively affect the STEM student experience for women. Based on these findings, recommendations and approaches are identified.

Courtney Rudd, From Pipelines to Pathways, San Francisco State University, Fairfax, CA; Norena Norton Badway, From Pipelines to Pathways, San Francisco State University, San Francisco, CA
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—Kristy Rhodes, technology education teacher for Oppenheim-Ephratah-St. Johnsville Central School District in central New York, a graduate of Ball State’s online master’s in technology education program

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Connecticut College of Technology’s Regional Center for Next Generation Manufacturing

▸ Professional Development
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▸ Student Recruitment & Retention
▸ 2 + 2 + 2 Seamless Pathways
7:30 A.M.–1:00 P.M.
Registration (outside Regency Ballroom)

7:30–8:15 A.M.
Continental Breakfast in Exhibit Hall
*Prize Drawing 8:00 (Riverside Center West)

7:30 A.M.–Noon
Exhibit Hall Open (Riverside Center West)

8:15–9:00 A.M.
6A Cybersecurity Training for ALL Technicians (Toronto)
6B Innovative Curriculum Models for Adv Tech Ed (Acapulco)
6C Buffing Up Your ATE Project (Comiskey)
6D U.S. DOL’s Geospatial Tech Model (Wrigley)
6E Silos Great for Farming, Not Programs! (Water Tower)
6F Scenario-Based Learning (Gold Coast)
6G Issues in Bioethics (Hong Kong)

9:15–10:00 A.M.
7A Is Teaching Cloud Computing in Your Future? (Toronto)
7B Lightning Round—Emerging Technologies (Acapulco)
7C Introduction to the Atomic Force Microscope (Comiskey)
7D Crosscutting System-Based Laboratories (Wrigley)
7E Tech Ed for Underprepared Students (Water Tower)
7F Training Renewable Energy Technicians (Gold Coast)

10:00–10:30 A.M.
Refreshment Break / View Exhibits
*Prize Drawing 10:15 (Riverside Center West)

10:30–11:15 A.M.
8A Manufacturing Matters (Toronto)
8B Embedded Gen-Ed: Lessons Learned (Acapulco)
8C NSF ATE Mentor-Connect (Comiskey)
8D Can a Rubric Benefit Technical Education? (Wrigley)
8E Using Remote Access/Control (Water Tower)
8F Competition as Curriculum (Gold Coast)

11:30 A.M.–12:15 P.M.
9A PBL in Advanced Manufacturing (Toronto)
9B CC Consortium for Biosciences Credentials (Acapulco)
9C Emerging Technology and Water Treatment (Comiskey)
9D Key Success Factors for Building TDL Pathways (Wrigley)
9E Creating Digital Learning Environments (Water Tower)

12:30–1:30 P.M.
Keynote Luncheon (Regency ABC)

1:45–2:30 P.M.
10A Online Modules for Career Success Skills (Toronto)
10B NE3I: A Public-Private Partnership (Acapulco)
10C Just-In-Time! Solutions in Adv Tech Ed (Comiskey)
10D Strategies for Outreach Partnerships (Wrigley)
10E Experiences of Techs from ATE Programs (Gold Coast)

2:30–2:45 P.M.
Refreshment Break (Regency Foyer)

2:45–3:30 P.M.
11A National K-12 Cyber Security Ed Project (Toronto)
11B Adventures in Open Source Hard/Software (Acapulco)
11C Statistical Process Control in the Classroom (Comiskey)
11D Rural CC Tears Down Barriers in Engineering (Wrigley)
11E ATEP: Web-Based Tech Ed Curriculum (Water Tower)

3:45–4:30 P.M.
12A Cyberforensics: Art and Science (Toronto)
12B Linking In-Demand Job Skills to Tech Ed (Acapulco)
12C Integrating STEM (Comiskey)
12D Student-Oriented CXO: A Big Success (Wrigley)

*Must be present to win prize drawings.
6A Toronto

Cybersecurity: Training Needed for ALL Technicians, ALL Disciplines

Your web-based tools, products, webpages, staff, and students are all open to cyber attack. What are you doing to keep safe? Does your ATE curriculum include any cybersecurity modules? Do your students take a cybersecurity course from another department? Does your college offer a cybersecurity academic or workforce development program? The five cybersecurity-related ATE centers can help. We have assisted all of the CAE2Y (Centers of Academic Excellence in Information Assurance 2-Year Education) schools obtain that designation from NSA/DHS, and we have helped dozens of other community colleges initiate or strengthen their cybersecurity programs. Come find out why and how.

Bob Spear, National CyberWatch Center, Swanton, MD

6B Acapulco

Innovative Curriculum Models for Advanced Technical Education in Community Colleges

Northwestern Connecticut Community College has strong programs in engineering and technology. Within the College of Technology, a cooperative Electric Power Technology Pathway was developed to offer internships and educational opportunities for students interested in power industry careers. Using this same model, a new program, MADE in Northwest Connecticut, was developed for students interested in pursuing manufacturing careers and will be made possible through an ATE-NSF grant. The details of both programs will be discussed, as well as ways other small colleges could use the same model to develop regional programs. These projects are made possible by the support of Connecticut’s Regional Center for Next Generation Manufacturing and the College of Technology.

Sharon Gusky, Tara Jo Holmberg, Northwestern Connecticut Community College, Winsted, CT

6C Comiskey

Buffing Up Your ATE Project: Tools, Resources, and Strategies

Ready to take your project to the next level? Or are you considering applying for an ATE grant? In this interactive session, six panelists from ATE projects and centers that offer resources and support to faculty and project managers will lead roundtable discussions and share resources and tools for managing and disseminating successful projects. Participants will select three roundtables to join to learn about newsletters, summer camps, publications, teachingtechnicians.org, Twitter, Facebook, awareness and recruitment videos, webinars, Google Adwords, Outreach and Social Media Kits, and/or problem-based learning. You will develop a plan for taking your project from blah to bodacious!

Marilyn Barger, FLATE, Tampa, FL; Rachael Bower, ATE Central, Madison, WI; Anna Kolliopoulos, SC ATE Center of Excellence, Florence, SC; Michael Lesiecki, MATEC NetWorks, Phoenix, AZ; Anthony Manupelli, Pellet Productions, Reading, MA; Jane Ostrander, Destination: Problem-Based Learning Project, Reno, NV
6D Wrigley

Update Plan for the U.S. Department of Labor’s Geospatial Technology Competency Model

In collaboration with the U.S. Department of Labor, the National Geospatial Technology Center is updating the Geospatial Technology Competency Model (GTCM) so that it can remain a valid tool for the geospatial industry. We are conducting this evaluation to determine what modifications are needed to keep the existing competency model relevant in our industry. In doing so, it will provide a more accurate device for defining the specific competencies needed in our rapidly changing field and better enable colleges to prepare students for employment in today’s workforce. This session will share what we have learned to date regarding the changes needed.

Rodney Jackson, National Geospatial Technology Center, Thomasville, NC; Vince DiNoto, National Geospatial Technology Center, Louisville, KY; Rich Schultz, National Geospatial Technology Center, Chicago, IL

6E Water Tower

Silos Are Great for Farming, but Not for Growing Programs!

In this fast paced, activity-based session attendees will explore and experience the benefits of partnering internally, who can be your “champion” and how can you be their “champion,” and how to maximize ROI by internal partners. Participants will take away proven strategies!

Rick Frazier, Catie Goodman, Tallahassee Community College, Tallahassee, FL

6F Gold Coast

Successful Teaching/Learning Using Computational Thinking via Scenario-Based Learning

Students need a special set of thinking skills to work and define problems. This is computational thinking. Computational thinking is paired with scenario-based learning as a technique to teach participants how to prepare their students to use computers in different ways as they problem solve in various disciplines. During this session, participants will learn how to engage their students in a unique learning methodology.

Charles Winer, Purdue University Calumet, Hammond, IN; Deborah Boisvert, BATEC, Boston, MA; Jennifer Werner, Health Systems of Northwest Indiana, Chesterton, IN

6G Hong Kong

Issues in Bioethics: Addressing the Paradigm Shift in Stem Cell Science

The science driving human stem cell technologies is rapidly growing, leaving in its wake issues that open up new bioethical concerns. For example, newer methods of generating stem cells have shifted the primary ethical debate from embryo-centric issues to those of government policy, regulations, socioeconomics, and accessibility. This session will include a general overview of emerging stem cell technologies and current therapeutics followed by a discussion of the “next generation” of ethical issues that accompany these advancements.

Jeanette Mowery, Lisa Seidman, Bio-Link, Madison, WI; Thomas Tubon, Madison Area Technical College, Madison, WI
Sessions • 9:15 – 10:00 A.M.

7A Toronto

Is Teaching Cloud Computing in Your Future?
“Cloud computing” is no longer just a buzzword. Many large companies are now utilizing cloud services. The next generation of IT technicians will need to be trained in cloud technologies. This presentation will provide a glimpse into the new cloud computing curriculum being developed by the Convergence Technology Center. The session will cover the basics of cloud computing, deployment and service models, provisioning and scalability, storage, virtualization, and security. The session will conclude with a discussion of how industry certifications can be integrated into your IT curriculum.

Bill Saichek, Convergence Technology Center, Costa Mesa, CA

7B Acapulco

Lightning Round—Emerging Technologies
Come and join the fun as six presenters have exactly seven minutes each to describe the future of their emerging technology areas.

Moderator: Rachael Bower, ATE Central, Madison, WI; Panelists: Daniel Hull, OP-TEC, Waco, TX; Karen Wosczyza-Birch, RCNGM, Farmington, CT; Gordon Snyder, ICT Center, Springfield, MA; Marilyn Barger, FLATE, Hillsborough, FL; Michael Lesiecki, MATEC Networks, Phoenix, AZ; Edgar Troudt, Student Entrepreneurs Video Project, New York, NY

7C Comiskey

Introduction to the Atomic Force Microscope
This session will introduce the participants to the theory and usage of a portable AFM. Using the NaioAFM from Nanosurf, the participants will see how to load and measure small samples of materials ranging from silicon wafers to chemical and biological samples. The participants will also have the opportunity to review the program created to provide the AFM to schools and colleges to complement the hands-on activities of their nanoeducation program.

Abraham Michelen, Ryan Munden, NEATEC, Troy, NY

7D Wrigley

Using Crosscutting System-based Laboratories to Improve Student Comprehension and Retention
One of the challenges in the education of technicians is developing methods to teach fundamental principles while keeping the value of those fundamentals relevant to students. It is very easy for the usefulness of technical theory to become isolated from its application causing the student to “silo” the knowledge. When this occurs students are more likely to rely on rote memory than the mastery of concepts and to use memorization and procedures rather than critical thinking in problem solving. This session will provide a practical and low-cost platform to integrate practical application and classic electrical and process control theory.

Steve Larson, Lawrence Beaty, Idaho State University, Energy Systems Technology Center, Pocatello, ID

7E Water Tower

Building Technical Education Programs for Underprepared Students: Why We Should and How We Can
In order to meet workforce needs in technician education, educators, researchers, and policymakers advocate for increasing access to STEM programs for underprepared community college students. Because of the increasingly sophisticated and academic nature of technician education, many programs continue to struggle with this challenge, focusing instead on a more traditional pool of students as STEM-appropriate. This session will not only make the case for expanding access, but will also provide evidence and share practices of technical programs effectively reaching out to underprepared students and strengthening academic skills while teaching the necessary technical skills.

Norena Norton Badway, Jamal Cooks, Andrea Goldfinn, Armineh Noravian, San Francisco State University, San Francisco, CA; Tanya Rogers, Benjamin Franklin Institute of Technology, Boston, MA; Angela Wall, Wayne Community College, Goldsboro, NC
7F Gold Coast

Training Renewable Energy Technicians: An International Perspective
Preparation technicians for the emerging renewable and sustainable energy workforce is a challenge that crosses national boundaries. In an effort to learn more about how other countries are preparing workers for this sector, our team of renewable energy faculty and administrators traveled to Australia, New Zealand, Germany, and Denmark to meet with technical educators, visit teaching labs, review industry partnerships, and talk with policymakers and college administrators. Join us for an informative session that will highlight best practices, outline key lessons learned and present an overview of the similarities and differences in technician training across these countries.

Mary Slowinski, CREATE, Santa Clarita, CA
Manufacturing Matters: A Presidents Panel

With the resurgence of manufacturing and technology employment, how do educational institutions and industry collaborate to promote the skills needed in the workforce? Two community college presidents will discuss their challenges in supporting technology education programs. Industry executives will give their insight to the pressures arising from competition, globalization, and talent shortages. An outcome of this engaging panel discussion will be the identification of turning point opportunities for our local, regional, and national communities to forge collaborations focused on action in partnership for the new American workforce.

Moderator: Terry M. Iverson, Iverson & Company, Chicago, IL; Panelists: Bryan D. Albrecht, Gateway Technical College, Kenosha, WI; Warren Young, Acme Industries, Elk Grove Village, IL; Peg Lee, Oakton College, Des Plaines, IL

Embedded Gen-Ed: Lessons Learned

Three years ago, the Illinois Green Economy Network (IGEN) and 17 Illinois community colleges received a U.S. Department of Labor grant to increase access to underserved student populations. One of the initiatives of the grant was designed to aid career students in the completion of their associate degrees by embedding general education outcomes into career and technical education (CTE) programs. The College of Lake County and John A. Logan College were two of the colleges selected to work on this initiative. This session will highlight their lessons learned. Come learn about experiences, accomplishments, and setbacks encountered along the way.

Allan Levandowski, College of Lake County, Grayslake, IL

No-Cost Help in Seeking Grant Funding: NSF ATE Mentor-Connect Opportunity and Tips from New Grantees

The National Science Foundation-funded Mentor-Connect project can help you prepare a competitive proposal for a “Small Grant for Those New to ATE,” a special funding track in the Advanced Technological Education (ATE) Program at NSF. This unique funding opportunity offers up to $200,000 for projects to improve science and engineering technician education programs or teacher preparation programs that focus on technological education. This small grants opportunity is designed for institutions that have not received NSF funding in the past 10 years. Participants will receive a self-assessment of readiness to write a proposal, numerous self-help resources, and insights from those who have benefited from Mentor-Connect.

Elaine Craft, Charlotte Forrest, Mentor-Connect: Leadership Development and Outreach for ATE, Florence, SC; Dennis Faber, Mentor-Connect: Leadership Development and Outreach for ATE, Ocean Pines, MD; Celeste Carter, National Science Foundation, Arlington, VA
10:30–11:15 a.m. Sessions (continued)

8D Wrigley

Can a Rubric for Design of Online Continuing and Professional Education Benefit Technical Education?

The Quality Matters™ Rubric for design of non-credit online continuing and professional courses is an effective tool for ensuring well designed courses that have clear objectives, anticipate and provide the information students need to be successful, and embody strategies that engage students. Corporate technical training faces many of the same challenges. This session will describe the rubric’s key features and the process for reviewing and improving courses. The session will describe QM’s experience with corporate and governmental clients such as Proctor & Gamble, General Electric, and the Centers for Disease Control. Wider applicability to corporate settings will be discussed with the audience.

Ron Legon, Deborah Adair, The Quality Matters Program, Annapolis, MD

8E Water Tower

Leveraging Your Equipment and Facilities for Program Development Using Remote Access and Control

Teaching students through distance technology is nothing new. Using distance technology to effectively perform hands-on training and to also perform outreach and recruitment to current and prospective students is now at the cutting edge of education. Through this session you will learn how several members of the NACK Network are applying RAIN (remotely accessible instruments for nanotechnology) to more fully utilize their equipment investment to access classrooms across the nation without leaving their home base. Are you interested in learning more? Could the lessons we have learned here be extended to your technology?

Robert Ehrmann, Daniel Cavanaugh, Nanotechnology Applications and Career Knowledge (NACK) Network, University Park, PA; Peter Kazarinoff, North Seattle Community College, Seattle, WA; James Smith, Salt Lake Community College, Salt Lake City, UT

8F Gold Coast

Competition as Curriculum: Why Competitions Will Work in Your Field

This presentation will describe how the National Cyber League (NCL) capture-the-flag (CTF) competition was integrated into the teaching practice of faculty at 120 two- and four-year institutions in the fall of 2013. The NCL was founded in May 2011 to provide an ongoing virtual training ground for college students to develop, practice, and validate their cybersecurity skills. The NCL model will be described with a focus on how the model can be implemented in other disciplines.

Casey O’Brien, Portia Pusey, National CyberWatch Center, Largo, MD; James Jones, Mid-Pacific ICT (MPICT) Center, San Francisco, CA
Sessions • 11:30 A.M.–12:15 P.M.

9A Toronto

Problem Based Learning (PBL) in Advanced Manufacturing: Transforming 21st-Century Technician Education

The New England Board of Higher Education’s (NEBHE) Advanced Manufacturing Problem-Based Learning (AM PBL) project has developed classroom-ready PBL Challenges that provide secondary and postsecondary instructors and students the opportunity to solve authentic advanced manufacturing problems provided by industrial partners. Participants will learn how the PBL Challenges were developed in collaboration with industry and include current advanced manufacturing practices in fields such as aerospace, optics, precision measurement, medical devices, and nanotechnology.

Nicholas Massa, New England Board of Higher Education, Boston, MA; James DeLaura, Central Connecticut State University, New Britain, CT

9B Acapulco

Update on the Community College Consortium for Biosciences Credentials: A Round Two TAA US DOL Grant

The c³bc, a coast-to-coast twelve-college consortium, is in its second year of operation. These colleges are building strong bioscience programs to meet the demand for displaced workers and returning veterans. The US DOL TAACCCT program focuses on improving preparation for workforce training, introducing portable industry-recognized credentials into training, accelerating completion time in programs, and building community college curricula to meet employer needs. Our annual report to the US DOL revealed that over 500 students are taking courses in our programs. Innovative programs have been developed in lab skills, medical devices, and biomanufacturing. c³bc works seamlessly with the NSF ATE Bio-Link and NSF ATE NBC² Centers.

Russ Read, Michael Ayers, Forsyth Technical Community College, Winston-Salem, NC; Elaine Johnson, Bio-Link, San Francisco, CA; Sengyong Lee, Ivy Tech Community College, Bloomington, IN; Sonia Wallman, NBC², Blue Bell, PA

9C Comiskey

Emerging Technology and Water Treatment: Activities for the Classroom from Nano-Link

Join us to experience new activities that focus on nanotechnology and its use in water treatment.

Sandra Weeks, Nano-Link, Denver, CO

9D Wrigley

Key Success Factors for Building Transportation, Distribution, and Logistics (TDL) Pathways

This session will provide strategies for creating academic pathways in the transportation, distribution and logistics (TDL) industry. Presenters will discuss their efforts to cultivate partnerships with industry leaders and high school stakeholders. Attendees will leave with practical resources geared toward assisting their institutions in the creation and enhancement of workforce programs while promoting a culture of student engagement through career services workshops and student organizations.

Ruben Howard, Cheryl Freeman-Smith, Joanne Ivory, Kassandra McGhee-Johnson, City Colleges of Chicago Olive-Harvey, Chicago, IL

9E Water Tower

Creating Digital Learning Environments for the Next Generation Workforce

This session showcases a technical education model integrating technology and problem-based learning (PBL) to support the development of industry-recognized skills within online learning environments. This model was developed by the Center for Aviation and Automotive Technology Education using Virtual E-Schools (CA²VES), which is funded through NSF ATE. Participants will experience an advanced learning management system wherein students interact with digital learning tools and perform PBL scenarios. Participants will learn about PBL resources and consider how PBL can be implemented into online courses.

Ginny Hall, Kapil Madathil, Center for Aviation and Automotive Technology Education Using Virtual E-Schools (CA²VES), Clemson, SC
Keynote Luncheon

Thursday, 12:30–1:30 p.m., Regency ABC

Hilary Mason
Data Scientist in Residence at Accel, Scientist Emeritus at bitly, co-founder of HackNY, co-host of DataBotham

Data, Startups, and Opportunity

Data is opening up new product and business opportunities that startups and large companies are eagerly taking advantage of. This talk will discuss data technology, why this is happening today, explore some of the interesting developments on the horizon, and survey the kinds of skills that young professionals will need to thrive in a data-centric environment.

Hilary Mason serves as the Data Scientist in Residence at Accel Partners and as an Advisor of Accel Big Data Fund. She serves as an Advisor of Mortar Data Inc. and is a Mentor at TechStars, LLC. Hilary is a Computer Science Professor with a background in machine learning and data mining. She advises Mayor Bloomberg on Technology and Innovation and was named in Forbes’ 40 Under 40. Hilary is an enthusiastic Central Member of the larger conspiracy to evolve the emerging discipline of data science. She served as the Chief Scientist/Lead Scientist at bitly, Inc. (alternately Bit.ly). She co-founded HackNY and serves as a member of the Business Advisory Board of Maternova, Inc. Hilary is an enthusiastic developer and often releases code on her personal site. She started the data science blog Dataists (dataists.com) and is a member of hacker collective NYC Resistor. Hilary is widely published and regularly speaks at academic and industry conferences. She holds undergraduate degrees from Grinnell College in English and Computer Science and graduate degrees from Brown University in Computer Science with a focus on Artificial Intelligence.
Sessions • 1:45–2:30 p.m.

10A Toronto

Development of Online Learning Modules to Introduce Topics Related to Career Success Skills

In response to feedback from manufacturing businesses with respect to the lack of work readiness skills of college graduates, 360° has developed multiple stand-alone online learning modules to help introduce topics related to career success to a broad audience. This session will review the information collected from manufacturing businesses with respect to desired career success skills, the development of the career success skills learning modules, and the dissemination of the learning modules to a broad audience.

Karen White, 360° Manufacturing and Applied Engineering ATE Regional Center of Excellence, Bemidji, MN

10B Acapulco

NE3I: A Public-Private Partnership to Promote Economic Development by Training Technicians

The Nanotechnology Education, Employment and Economic Development Initiative (NE3I) was created in 2011 as a public-private partnership consisting of Oakton Community College (Des Plaines, IL); the Village of Skokie (IL); Forest City Enterprises, Inc.; and NSERVE, a local career and technical high school educator collaboration. NE3I has worked to make a positive impact on regional economic development by establishing Oakton as a nanotechnology training provider at the Illinois Science + Technology Park to create the qualified workforce required by nanotech and biotech firms. This supply of highly trained technicians will encourage these firms to remain and expand within the region.

John Carzoli, Robert Sompolski, Oakton Community College, Des Plaines, IL; Martha Eldredge Stark, NSERVE, Park Ridge, IL; Leslie Murphy, Village of Skokie, Skokie, IL

10C Comiskey

Just-In-Time! Solutions to Everyday Challenges in Advanced Technological Education

Whether you face recruitment/retention challenges, need to secure funding to bring your visions to reality, want to improve critical thinking and other workplace readiness skills of your students, or stay up-to-date in your discipline and/or with emerging technology, TeachingTechnicians.org can help. This session will provide step-by-step instructions for quickly finding the solutions you need, when you need them.

Anna Kolliopoulos, Elaine Craft, SC ATE Center of Excellence, Florence, SC

10D Wrigley

Strategies and Lessons Learned for Creating Successful Outreach Partnerships

Working with local educational organizations and educators, Seattle’s Hub for Industry-driven Nanotechnology Education (SHINE) has created an effective outreach program through partnerships that help us to minimize expenditure of time, money and other resources. Learn practical strategies for making connections, marketing, and bringing emerging technology education into middle and high schools through outreach events and teacher workshops, including what we learned along the way.

Maureen Devery, SHINE, Seattle, WA

10E Gold Coast

Listening to the Experience of Technicians from ATE Programs

This session features working technicians who tell their stories, share their work experiences, and help educators design learning experiences that prepare them for the technical workplace.

11A Toronto

Understanding and Leveraging the National K-12 Cyber Security Education Project

This session will describe and share the K-12 Cyber Security Education Project, a national effort to document the K-12 cyber security education programs ongoing throughout the country and to address the goal of developing a comprehensive agenda focused on the challenges of cyber security education at the K-12 level. The project directory is a valuable resource in finding and cataloging information about K-12 cyber security programs in one central repository, and contains program locations, descriptions, target audiences, resources available, organization needs, and contact information. Learn about the extensive resources and join the growing K-12 Cyber Security Education Project community.

Davina Pruitt-Mentle, National CyberWatch Center, Clarksville, MD

11B Acapulco

New Adventures in Open Source Hardware and Software Through Public-Private Partnerships

This session will describe how a partnership between a community college, a four-year college, an out-of-school provider, and a private company resulted in large-scale training with open source hardware using the Raspberry Pi and Arduino. The panel will describe recent strategies that got educators to fearlessly embrace a “maker” mentality and learn about exciting and emerging technology. This will feature live demonstrations of Raspberry Pi and Arduino projects.

Michael Davis, BATEC, City Colleges of Chicago, Chicago, IL; Gerald Doyle, Illinois Institute of Technology, Chicago, IL; Diane Kibbey, Premier Farnell/Element 14, Chicago, IL; Jameela Jafri, After School Matters, Chicago, IL

11C Comiskey

Hands-on Statistical Process Control in the Classroom

Statistical process control (SPC) is used in all high-tech manufacturing environments. This session will cover the basics of SPC including process variation, control charts, and measurement systems through a hands-on measurement approach. Resources will be provided.

Matthias Pleil, Southwest Center for Microsystems Education (SCME), Albuquerque, NM

11D Wrigley

Rural Community College Tears Down Barriers That Prevent Students From Pursuing Engineering Pathway

Rural Arizona’s Cochise College has established a locally driven Professional Learning Council (PLC) to tackle the barriers that prevent students from pursuing engineering and engineering technology careers. These barriers are being addressed through action-oriented team investigations around student math placement, homework, content retention, course pace, and career exploration. We will introduce the PLC model, describe the research projects, present the evidence collected and analyzed, and share the outcomes that, through application and delivery, are leading to changes in math and science teaching and increases in capacity of the engineering pathway for students at Cochise College.

Caroline VanIngen-Dunn, Science Foundation Arizona, Phoenix, AZ; Ronda Frueauff, Cochise College, Sierra Vista, AZ
2:45–3:30 P.M. Sessions (continued)

11E Water Tower

ATEP: Anytime Anywhere Web-Based Technological Education Curriculum

This NSF-funded project (ATEP) at Hofstra University is developing semester-long high school courses in manufacturing, bio/chemical technology, and ICT as on-line web-accessible curricular modules for maximum implementation flexibility.

Gordon Snyder, ICT Center, Springfield, MA

Regional Center for Nuclear Education & Training (RCNET)

Mission

The Regional Center for Nuclear Education & Training (RCNET) was established to make sure the demand for skilled nuclear technicians is met in a standardized and systematic way.

41 Thousand Opportunities by 2030

www.gonuke.org
Cyberforensics: Art and Science
While cybersecurity focuses on protecting digital devices and information assets, cyberforensics focuses on examining digital media and information assets in the aftermath of an “adverse event.” In this presentation we provide an introduction to the art and science of cyberforensics. Topics covered include demonstrations of evidence handling, creating and verifying a forensic image, and forensic examinations. We also discuss training, education, and job opportunities; certifications; and legal issues related to cyberforensic cases.

Philip Craiger, Advanced Cyberforensics Education Consortium (ACE), Daytona Beach, FL

Linking In-Demand Job Skills to Technician Education: An Analysis of Job Postings Metadata
The technological needs of business and industry are always changing, and we as educators are challenged to keep students focused on the right skills to meet these changing needs. One strategy is to use employers’ job postings to identify the current skills in demand. Educators can use the data on in-demand skills to improve their programs and courses to meet industry demands. This session will also explore how these skills linkages can be used in conjuncture with traditional industry engagement models to bring the most relevant learning experiences to students.

Brad McPeak, Levi Thiele, Midwest Center for IT, Omaha, NE

Integrating STEM: Successfully Integrating a STEM Curriculum in Technology Education
With a growing concern that American students are lagging in math and science skills, STEM is being pushed into all branches of education. A STEM curriculum fits effortlessly within academics, so the question becomes how can STEM be successfully integrated into technology education? In this session, we look at how STEM is effectively being integrated into a composites technician’s program at South Seattle College through projects, on-line curriculum, and more, and its very successful outcomes.

Mindy Ursino, South Seattle College, Seattle, WA; Kim Law, Anne Arundel Community College, Arnold, MD

Student-Oriented CXO: A Big Success
For the past two years, Austin Community College (ACC) has pioneered a student-oriented CXO in the state of Texas. Several companies have worked with ACC in setting up Contract Research/Manufacturing Projects. This has been a win-win situation for all. Student learning and success rates in securing jobs in the biotech industry have gone up. The model adopted by ACC will be discussed, including examples of the effects of student success.

Sulatha Dwarakanath, Linnea Fletcher, Austin Community College, Austin, TX
Bio-Link Connects

- **STUDENTS** – Find biotech programs, get information about biotech careers, and hands-on skills for biotech jobs
- **INSTRUCTORS** – Find professional development opportunities, find information for starting and continually improving biotech programs, learn from each other
- **EMPLOYERS** – Connect to biotech programs, find courses for professionals, find skilled biotechnicians

SMART (Southeast Maritime and Transportation) Center is a proud producer of the 6th annual HI-TEC Conference. As a National Science Foundation Advanced Technological Education (NSF ATE) Center we are helping transform the future of the industry with a 21st century trained, maritime and transportation technician workforce.

We provide educators with career awareness and career pathway tools, a week-long summer institute, and connections with industry leaders. Learn more at:

757-822-7485
NEATEC is leading the way in developing model programs for serving the workforce development needs of nanotechnology and nanoelectronics businesses in the Northeast.

In partnership with local education institutions and businesses, NEATEC provides community-college and secondary-school students with extraordinary hands-on opportunities to engage in cutting-edge education and training through cooperative learning, internships and outreach programs—efforts that will have a direct and immediate impact on the readiness and capabilities of the nanotechnology workforce in New York and Western New England.

- Partner-based Experiential Learning
- Outreach, Awareness, Recruitment
- Attracting students to STEM careers
Southwest Center for Microsystems Education

America’s Authority for Microsystems Education

» Providing “Cleanroom in a Kit” Teaching Tools

» Enabling Educators to Teach Microsystems

» Enriching Technological Education for Tomorrow’s Workforce

www.scme-nm.org

DeafTEC

Integrating more deaf and hard-of-hearing individuals into the workplace in STEM technician careers

- High School, Community College, and Employer Partnerships in California, Florida, and Texas
- Online STEM Career and Educational Resources for Students, Teachers, Parents, & Employers
- Teacher and Employer Professional Development
- National Dual Credit Program in STEM

www.deaftec.org
Please visit our 2014 HI-TEC Exhibitors in Riverside Center West, Lower Level, East Tower. Exhibits are open on Wednesday, July 23, 9:45 a.m. to 6:00 p.m. (with an Exhibitor Reception 4:30 to 6:00 p.m.) and Thursday, July 24, 7:30 a.m. to noon.

Booth 808
American Technical Publishers
10100 Orland Parkway, Suite 200
Orland Park, IL 60467
www.atplearning.com
ATP is an independent publisher of print and digital training products. We publish educational content with leading programs in the electrical, construction, maintenance, and mechanical trades.

Booth 805
AMTEC: Automotive Manufacturing Technical Education Collaborative
300 North Main Street
Versailles, KY 40383
www.autoworkforce.org
AMTEC is a National Science Foundation (NSF) funded collaboration of community and technical colleges and industry partners from across the U.S. working together to promote postsecondary education and high-school career choices in advanced manufacturing, and skills development to better prepare highly skilled technicians and manufacturing engineers for work in automobile manufacturing and advanced manufacturing technology to be globally competitive.

Booth 704
Amatrol
2400 Centennial Boulevard
Jeffersonville, IN 47130
www.amatrol.com
With a mission to transform the global workforce one life at a time, Amatrol is the world leader in interactive, skills-based technical learning.

Booth 407
Ball State University
Online and Distance Education, BC 220L
Muncie, IN 47306
www.bsu.edu/online
Ball State’s all-online master’s degrees in career and technical education and technology education prepare you for advancement in many educational settings or in other fields.

Booth 505
ACE: Daytona State College – Advanced Cyberforensics Education Consortium
1770 Technology Boulevard
Daytona Beach, FL 32117
www.cyberace.org
The Advanced Cyberforensics Education Consortium is a partnership between state and community colleges to train faculty, provide curriculum materials for bootstrapping programs, and workforce retraining.

Booth 506
ATE Central: Advanced Technological Education Central
1210 West Dayton Street
Madison, WI 53706
http://atecentral.net
ATE Central is a freely-available online portal and collection of materials and services that highlight the work of the Advanced Technological Education (ATE) projects and centers.

Booth 715
Armfield Inc.
9 Trenton Lakewood Road
Clarksburg, NJ 08510
www.discoverarmfield.com
Armfield will be introducing two new revolutionary teaching systems for structural behavior and thermal fluid applications.

Booth 609
Bio-Link
City College of San Francisco
1855 Folsom Street, Suite 643
San Francisco, CA 94103
www.bio-link.org
The Bio-Link Next Generation National ATE Center for Biotechnology and Life Sciences continues to build on the success of the original Bio-Link ATE Center funded in 1998 to meet the rapidly changing needs of biotechnology, related life sciences industries and prospective workforce. The Center continues to provide a much wider range of services and products needed by the swiftly changing biotechnology industry.

Booth 607
BATEC: Broadening Advanced Technological Education Connections
UMass Boston
100 Morrissey Boulevard
Boston, MA 02125
www.batec.org
BATEC is the NSF ATE National Center of Excellence for Computing and Information Technologies focusing on curriculum, faculty development, student advancement and actionable research.

Booth 511
c3bc: Community College Consortium for Bioscience Credentials
2100 Silas Creek Parkway
Winston – Salem, NC 27103
www.biotechworkforce.org
The c3bc is a Round Two US DOL multicenter consortium grant looking at developing a core set of Bioscience Skill Standards and expanding Bioscience training capacity.
Booth 514
CA’VES: Center for Aviation and Automotive Technology Education using Virtual E-Schools
110 Freeman Hall
Clemson, SC 29634
www.clemson.edu/ca2ves
CA’VES aims to advance aviation, automotive and manufacturing technician education through e-learning, virtual reality and simulation modules designed to maximize instructor and program flexibility.

Booth 713
CAAT: The Center for Advanced Automotive Technology
14500 East 12 Mile Road
Warren, MI 48088
www.autocaat.org
The Center for Advanced Automotive Technology focuses on curriculum reform and dissemination and student preparation to train technicians to meet new automotive technology requirements.

Booth 811
CARCAM: Consortium for Alabama Regional Center for Automotive Manufacturing
1001 George Wallace Drive
Gadsden, AL 35903
www.carcam.org
 Consortium for Alabama Regional Center for Automotive Manufacturing (CARCAM) responds to rapid advanced manufacturing sector growth by establishing and implementing innovative methods to develop a highly-skilled, diverse technical workforce and provide state-of-the-art professional development.

Booth 603
Computer Comforts
367 Columbia Memorial Parkway
Kemah, TX 77565
www.computercomforts.com
Furniture manufacturer for Active Learning Environments: instructor lecctems, testing carrels, multi-use, general purpose, collaborative and CAD tables. From design to delivery, Computer Comforts makes your furniture selection an easy one.

Booth 410
CORD: Center for Occupational Research and Development
PO Box 21689
Waco, TX 76702
www.cord.org
The Center for Occupational Research and Development (CORD) is a nonprofit educational organization with 30 years experience supporting community colleges across the country. Stop by and learn more about our curriculum design services in STEM and technical fields, our customized faculty development programs, and technical assistance for both adult and traditional career pathways programs.

Booth 816
CSEC: Cyber Security Education Consortium
1500 West Seventh Avenue
Stillwater, OK 74074
www.cseconline.net
The Cyber Security Education Consortium (CSEC) is a cohesive partnership of community colleges and career and technology centers in eight states and the University of Tulsa.

Booth 807
CSSIA: Center for Systems Security and Information Assurance
9000 West College Parkway
Palos Hills, IL 60465
www.cssia.org
CSSIA is an NSF ATE National Center for Systems Security and Information Assurance specializing in cyber security faculty development, curriculum and virtualization.

Booth 709
CTC: National Convergence Technology Center
9700 Wade Boulevard #J130
Frisco, TX 75035
www.connectedtech.org
The National Convergence Technology Center mentors and supports colleges in creating curriculum, degrees, and certificates; recruiting underserved students; and developing faculty under business leadership.

Booth 814
CyberWatch: National CyberWatch Center
301 Largo Road, CAT 129C
Largo, MD 20774
www.cyberwatchcenter.org
The role of the National CyberWatch Center is to lead and support collaborative efforts to advance cybersecurity education and strengthen the national cybersecurity workforce.

Booth 415
CyberWatch West
237 West Kellogg Road
Bellingham, WA 98226
www.cyberwatchwest.org
CyberWatch West is a National Science Foundation Center for Cybersecurity Education on the West Coast.

Booth 513
DeafTEC: Technological Education Center for Deaf and Hard-of-Hearing Students
Rochester Institute of Technology
National Technical Institute for the Deaf
52 Lomb Memorial Drive, Building 53, Suite 1120
Rochester, NY 14623
www.deaftec.org
A National Center of Excellence that serves as a resource for teachers and employers with the goal of successfully integrating more deaf and hard-of-hearing individuals into the STEM technician workforce.

Booth 711
Digilent, Inc.
1300 NE Henley Court, Suite 3
Pullman, WA 99163
www.digilentinc.com
Digilent Inc. is an educational hardware manufacturer that supports engineering education by making technology accessible to any audience. Since its founding in 2000, Digilent has developed products that blend the engineering classroom with the engineering workplace. Our cutting-edge semiconductor technology and other resources empower educators. To learn more about our company or to see us in action, visit our blog: http://digilentinc.com/blog.
Booth 716
Elmhurst College
190 Prospect Avenue
Elmhurst, IL  60126
www.elmhurst.edu
Whether you're pursuing a bachelor's degree, master's degree or certificate program, the School for Professional Studies at Elmhurst College will open the door to a wealth of opportunities and advance your career. To meet the needs of busy students, programs are offered on-campus through evening courses or entirely online through the Elmhurst College Online Center.

Booth 403
EMC Corporation
55 Constitution Boulevard
Franklin, MA 02038
http://education.emc.com/academicalliance/
EMC is a global leader in enabling businesses to transform their IT operations and deliver IT as a service.

Booth 712
ETA International
5 Depot Street
Greencastle, IN 46135
www.eta-i.org
ETA International, a non-profit professional association, promotes excellence in electronics technologies through certifications in a variety of electronics fields. All ETA certifications measure competencies of persons, not products or vendors.

Booth 515
EvaluATE
1903 West Michigan Avenue
Kalamazoo, MI 49008
www.evalu-ate.org
EvaluATE is the evaluation resource center for NSF’s Advanced Technological Education (ATE) program. We provide webinars, newsletters, workshops, and a digital resource library.

Booth 414
Excelsior College
7 Columbia Circle
Albany, NY 12180
www.excelsior.edu
Excelsior College is a private, regionally accredited, nonprofit institution of higher education. Excelsior provides accessible online instruction and supported independent study options for degree-seeking adults.

Booth 411
Fargo 3D Printing
3041 ½ Main Avenue
Fargo, ND 58103
www.fargo3dprinting.com
Fargo 3D Printing is on a mission to become the trusted source for the 3D printing needs of schools, businesses, entrepreneurs, and individuals.

Booth 613
Festo/Lab-Volt
Festo Didactic, Inc.
P.O. Box 686
Farmingdale, NJ 07727
www.festo.com/us/learningSystems
www.labvolt.com
Festo/Lab-Volt is the global leader in technical education equipment and training services.

Booth 612
FLATE: Florida Advanced Technological Educational Center
10414 East Columbus Drive – HCC Brandon
Tampa, FL 33619
www.fl-ate.org
FLATE is the National Science Foundation Center of Excellence committed to ensuring Florida has a well prepared technical workforce for manufacturing and related industries.

Booth 516
GeoTech Center
109 East Broadway
Louisville, KY 40202
www.geotechcenter.org
The National GeoTech Center of Excellence is an NSF-funded initiative advancing the geospatial technology community and helping to provide for the future geospatial workforce.

Booth 415
Goodheart-Willcox Publisher
18604 West Creek Drive
Tinley Park, IL 60477
www.g-w.com
Goodheart-Willcox publishes the instructional materials that are used to prepare students for America’s technical workforce. Learn more at our booth or visit www.g-w.com.

Booth 406
InsuraTech
11611 North Meridian Street, Suite 600
Carmel, IN 46032
www.insuratech.net
Insurance and program administration for mobile devices.

Booth 813
Manufacturing Skill Standards Council (MSSC)
1410 King Street
Alexandria, VA 22314
www.msscusa.org
An industry-led non-profit, the Manufacturing Skill Standards Council (MSSC) is the nation’s leading training and certification body focused on the industry-wide core technical competencies needed by the nation’s front-line production and material handling workers. MSSC certifications, based upon industry-defined and federally endorsed national skill standards, enable workers to demonstrate acquisition of the higher skills increasingly needed in the technology-intensive jobs of the 21st century. MSSC is the only national certification body accredited by the American National Standards Institute (ANSI) under ISO quality Standard 17024 (Personnel Certification) and endorsed by the National Association of Manufacturers for both manufacturing and logistics.

Booth 707
MATEC: Maricopa Advanced Technology Education Center
4110 East Wood Street
Phoenix, AZ 85040
www.matec.org
MATEC NetWorks is an NSF-ATE Resource Center that provides digital learning resources and faculty professional development opportunities in semiconductor, automated manufacturing, electronics and related fields.

Booth 815
MatEdU: National Resource Center for Materials Technology Education
20000 68th Avenue West
Lynnwood, WA 98036
www.materialseducation.org
The National Resource Center for Materials Technology Education (MatEdU) provides a collection of instructional modules, hands-on labs and numerous resources in materials science technology.
Booth 714
MCIT: Midwest Center for Information Technology
1905 Harney Street, Suite 700
Omaha, NE 68102
www.aimforbrilliance.org
Linking skills, jobs and educational opportunities.

Booth 606
Mentor-Connect
SC ATE Center of Excellence
2715 West Lucas Street
Florence, SC 29501
www.teachingtechnicians.org/
MentorConnectLanding.aspx
Mentor-Connect: A leadership development and outreach initiative designed to broaden the impact of the NSF ATE program through mentoring and knowledge transfer for technician education advancement among the nation’s two-year colleges.

Booth 611
MPICT: Mid-Pacific ICT Center
50 Phelan Avenue, S107
San Francisco, CA 94112
www.mpict.org
MPICT’s mission is to coordinate, promote and improve the quality of ICT education, with an emphasis on 2-year colleges, in a region consisting of California, Nevada, Hawaii and the Pacific Territories.

Booth 507
NACK: Nanotechnology Applications & Career Knowledge Network
Penn State
101 Innovation Boulevard, Suite 112
University Park, PA 16802
www.nano4me.org
The Nanotechnology Applications and Career Knowledge (NACK) National Network, headquartered at Penn State, has a multitude of resources and services available for the integration of nanotechnology into existing coursework and also for starting up complete nanotechnology undergraduate hands-on programs.

Booth 810
Nano-Link: Center for Nanotechnology Education
1300 145th Street East
Rosemount, MN 55068
www.nano-link.org
Nano-Link provides nanoscience and emerging technology content to educational institutions, educators and industry. Content includes over 11 nano-specific courses or as shorter (1 hour) activity-driven modules.

Booths 703, 705
National Instruments
11500 North Mopac Expressway
Austin, TX 78759
www.ni.com/academic
National Instruments is a leading provider of academic solutions for teaching engineering technology courses, using interactive, real-world learning experiences that prepare students for the workforce. For more information about NI academic solutions and discounts, visit www.ni.com/academic.

Booth 510
NBC2: NSF-ATE Biomanufacturing Center and Collaborative
Montgomery County Community College
340 DeKalb Pike
Blue Bell, PA 19422
www.biomanufacturing.org
NBC2 provides industrial-strength biomanufacturing curriculum and education and training for students and alumni, as well as professional development for teachers and faculty. Data collection methods will be demonstrated to elucidate information and publicize bioeconomy career pathway information locally and nationally.

Booth 503
NEATEC: Northeast Advanced Technological Education Center
80 Vandenburg Avenue
Troy, NY 12180
www.neatec.org
NEATEC provides students with hands-on learning opportunities in semiconductors and photovoltaics (PV) and has assembled extraordinary opportunities for community college and secondary school students.

Booths 706, 708
Nida Corporation
300 South John Rodes Boulevard
Melbourne, FL 32904
www.nida.com
Nida Corporation provides performance-based, computer-assisted technician training solutions for industry, military, and academic training programs around the globe.

Booth 512
Oakton Community College
1600 East Golf Road
Des Plaines, IL 60016
www.oakton.edu
Earn graduate credit at Chicago area nanotechnology training opportunities for secondary and post-secondary faculty. Industrial nanotechnology seminars are also available for enrollment. (http://ne3i.eventbrite.com)

Booth 605
OP-TEC: National Center for Optics and Photonics Education
316 Kelly Drive
Waco, TX 76710
www.op-tec.org
OP-TEC, an NSF/ATE National Center, is working with secondary, postsecondary and industry partners to increase and sustain our nation’s capacity to produce photonics technicians.

Booth 405
PMMI
11911 Freedom Drive, Suite 600
Reston, VA 20190
www.pmmi.org
PMMI is the association for the packaging and processing industry. Stop by to learn about our education programs such as the mechatronics certificate program, certified trainer program, and e-learning courses to train your workforce.

Booth 610
RCNET: Regional Center for Nuclear Education & Training
3209 Virginia Avenue
Fort Pierce, FL 34981
www.gonuke.org
RCNET was established to make sure the demand for skilled nuclear technicians is met in a standardized and systematic way.

Booth 812
RCNGM: Regional Center for Next Generation Manufacturing
271 Scott Swamp Road
Farmington, CT 06032
www.nextgenmfg.org
The Regional Center for Next Generation Manufacturing addresses the need for highly skilled workers in advanced manufacturing by partnering both educators and students with industry.
Booth 614
Rethink Robotics
27 Wormwood Street
Boston, MA 02210
www.rethinkrobotics.com
Rethink Robotics is changing the way robots can be used in educational programs to teach students the latest manufacturing technology. Our robots require no safety cages, complex programming or costly integration—and feature an unprecedented $25,000 base price.

Booth 608
SCME: Southwest Center for Microsystems Education
800 Bradbury Drive SE, Suite 235
Albuquerque, NM 87120
www.scme-nm.org
The Southwest Center for Microsystems Education (SCME) strives to increase the educational capacity to produce technologists skilled in assisting microsystem research, design, and commercialization activities.

Booth 803
SCTE: Supply Chain Technician Education
2001 Third Street
Norco, CA 92860
www.supplychaininteched.org
The National Center aspires to increase the number of skilled technicians by serving as the national leader for supply chain technology education.

Booth 806
Simtronics
PO Box 38
Little Silver, NJ 07739
www.simtronics.com
Simtronics Corporation provides Operator Training Simulators (OTS) for the Process Industries and the Educational Institutions that train operators and technicians.

Booth 504
SMART Center: Southeast Maritime and Transportation Center
1700 College Crescent
Virginia Beach, VA 23453
www.maritime-technology.org
The SMART Center serves as a regional education resource and an economic model for preparing a sustainable, globally prepared maritime and transportation workforce for the 21st century.

Booth 409
solidThinking, Inc.
1820 East Big Beaver
Troy MI 48083
www.solidthinking.com
solidThinking creates, develops, and markets technology that helps our user community bring the most desirable products to their customers faster.

Booth 710
SpaceTEC*: National Aerospace Technical Education Center
7099 North Atlantic Avenue, Suite 300
Cape Canaveral, FL 32920
www.spacetec.org
SpaceTEC® provides performance-based certifications for aerospace technicians and is developing similar products for other technical fields. Join us to explore collaborative opportunities.

Booth 804
Stratasys
5 Fortune Drive
Billerica, MA 01821
www.stratasys.com
Stratasys manufactures 3D printers and materials that enable designers, manufactures, educators and hobbyist to produce concept models, prototypes and finished parts from 3D content.

Booth 604
TeachingTechnicians.org
SC ATE Center: South Carolina Advanced Technological Education National Resource Center for Expanding Excellence in Technical Education
2715 West Lucas Street
Florence, SC 29501
www.TeachingTechnicians.org
SC ATE National Center: Expands excellence in technician education by linking educators to low cost/no cost professional development, a compendium of research and “how-to” videos on technician and STEM education.

Booth 416
The Science Source
299 Atlantic Highway
Waldoboro, MA 04572
www.thesciencesource.com
The Science Source enhances designs and manufactures high quality, high value science teaching materials that help educate America’s technical workforce.

Booth 509
VESTA: Viticulture & Enology Science & Technology Alliance
Missouri State University
901 South National Avenue
Springfield, MO 65897
www.vesta-usa.org
VESTA provides online grape and wine production coursework taught by industry leading instructors in the global classroom and enriched with extensive local hands-on field experiences.

Booth 508
Weld-Ed: The National Center for Welding Education and Training
1005 North Abbe Road
Elyria, OH 44035
www.weld-ed.org
Weld-Ed center offers professional development workshops to welding educators. Join the session to learn novel techniques of marketing the center and reaching out to a 100% audience.
Gold Level West Tower
Bronze Level West Tower
Purple Level East Tower
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