



## From the Director ...

NCATC Friends and Colleagues,

Spring is a great time for planning and refocusing as we look toward new opportunities for collaboration with our community partners. It's a particularly good time for an assessment of how well we're keeping up with the workforce development needs of our business and industry partners and the venues and formats in which we're engaging them. Nearly everyone reading this newsletter manages one, if not several, industry advisory committees. How often do you engage your committee? Do they co-lead the committee's work? How frequently do they provide input on training program competencies? How balanced is your committee makeup, both in the type of companies represented and the positions held by those involved? How diverse is your committee? What type of work-based learning opportunities are they providing your students? These are just a few examples of the continuous assessment questions colleges with **Business and Industry Leadership Teams (BILT)** ask themselves regularly. If you're intrigued by this model, learn more from our Strategic Partner Alliance (SPA) friends with the **National Science Foundation's (NSF) ATE Program** about implementing a **BILT** to help you continually improve relationships with business and industry to meet local needs.

NCATC's Board continues to partner with our ATC network of over 160 community and technical colleges and 30 corporate Strategic Partners to develop and deliver promising and best practices in key workforce areas. Learn more about each of **NCATC's Strategic Focus Areas** [here](#). One of our most recent projects revolves around our top Focus Area—*Industry 4.0: Emerging Trends in Advanced Technology and Smart Manufacturing*. We have partnered with **AACC** and the **Arconic Foundation** to help improve the content and processes for education and training on behalf of the employment pipelines in selected Arconic communities through asset identification, community preparation, and identification of promising practices in advanced technology and manufacturing. The project will provide technical assistance to a cohort of nine colleges in diverse areas such as *Cybersecurity, Simulation, System Integration, Big Data Analytics, Artificial Intelligence, Industrial Internet-of-Things (IIoT), Additive Manufacturing, Advanced Robotics*, etc. For details, see the AACC Press Release [here](#).

The NCATC Board of Directors and staff look forward to seeing you at the **2018 NCATC 30th Anniversary National Events**:

- We will be in California for our **Summer Workshop**, hosted by **College of the Canyons in Santa Clarita, CA, June 4-5, 2018**.
- For the **30th Anniversary Fall Conference, September 19-21, 2018**, we return to **Cleveland, OH**, home of two founding member colleges, **Cuyahoga Community College (Tri-C)** and **Lorain County Community College (LCCC)**.

For more event details, visit [ncatc.org](http://ncatc.org).

As always, we encourage you to stay regularly connected, via the NCATC [website](#), social media, and quarterly e-newsletters like this one.

J. Craig McAtee  
NCATC Executive Director



## American Association of Community Colleges and NCATC Are Working to Help Community Colleges Prepare Workers for Industry 4.0

The manufacturing industry is quickly evolving with new technologies being launched every day. As manufacturing companies continue to evolve, it is important to ensure that the workforce is ready to maximize those new technologies and processes for companies to stay competitive in the global marketplace. That is why the American Association of Community Colleges (AACC) and the National Coalition of Advanced Technology Centers (NCATC) have teamed up to support community colleges to prepare workers to meet Industry 4.0 demands through the "Creating Connections with Manufacturing Communities with Community Colleges" initiative.

With support from Arconic Foundation, AACC and NCATC will help advance colleges' manufacturing programs that support careers in Industry 4.0-related manufacturing.

"AACC is very excited to launch this project with our Affiliate Council NCATC," said AACC's Jen Worth, Sr. Vice President for Workforce and Economic Development. "Community colleges are resilient and have the capacity to quickly evolve to support local industry demand. This project will work to bridge any skills gaps and promote model programs to showcase the innovation and adaptability that community colleges can provide to support their industry partners and help their students thrive in the ever-changing job market."

NCATC Executive Director Craig McAtee voiced similar enthusiasm: "NCATC is delighted to be partnering with AACC and Arconic Foundation to connect many of our community college members with our Manufacturing USA Institute partners on Industry 4.0 workforce development strategies, action plans, initiatives, and programs, including America Makes, DMDII, LIFT, ARM, NextFlex, NIMBL, and REMADE."

This work to support community colleges will be done by sharing and expanding the most effective industry connections and tactical applications in the manufacturing industry. The following community colleges from targeted communities with high manufacturing demand were selected to participate as part of the cohort:

- Cuyahoga Community College, OH\*
- Eastern Iowa Community Colleges, IA

*See "Industry 4.0," page 3.*

## Harper College's College and Career Expo Features Dozens of Activities

Getting kids excited about technical and engineering careers is critical. Harper College is doing this through its annual College and Career Expo.

Area children from grades 4–8 spend time at Harper dabbling in technical and engineering activities that are fun! Children learn about 21st century careers as they participate in hands-on activities and demonstrations. Harper faculty teach activities related to technology, engineering, science, health care, and other fields. Children also meet industry experts and tour the campus.



Activities include building a bridge with gummy bears and toothpicks, making slime using the principles of chemistry, putting on an astronomer's hat by building a special viewer for a total solar eclipse, giving graphic arts a try by creating their own print palette cookie, and using 3D

printers to manufacture a key chain. These and dozens of other fun, educational and interactive demonstrations and activities encourage these students and their parents to prepare earlier for college and learn about occupations that require technical skills.

The free event takes place from 9:00 A.M. to 1:00 P.M. on a Saturday in late April each year. "We want kids to explore a wide variety of career options that are available to them and see the role education plays in preparing for those careers," Vice President Maria Coons said. "They have a lot of fun along the way and become inspired while they're learning."

The College and Career Expo draws more than 1,000 people.

### *Something for Adults, Too: Inspire U*

Parents and adults are able to participate in a separate experience: Inspire U, designed to inspire attendees going through a career change by offering speakers and programs that entertain and provide tools to think outside the box. This event includes fun and engaging activities, which is a refreshing change to typical job-seeking seminars. Inspire U is an exploration and experience expo that motivates adults to go forward as they learn about career opportunities in technical fields, business and health care.



The event is focused on exploring new ideas and regaining career focus. Its goal is to recharge a job search so attendees are better equipped for a positive career change.

These two events are a wonderful way to engage your community and build interest in technical and engineering fields.

For more information, contact Maria Coons at [mcoons@harpercollege.edu](mailto:mcoons@harpercollege.edu). ♦

## Congratulations!

## NCATC Members Honored

Past NCATC Board member

**Karen Wosczyzna-Birch, Ph.D.**, was a winner in the Connecticut Technology Council's 14th Annual Women of Innovation Awards, in the category Academic Innovation and Leadership (Postsecondary). She is a professor at Tunxis College and director of the Regional Center for Next Generation Manufacturing (RCNGM), an NSF Advanced Technological Education National Center of Excellence.



**Carol Pepper-Kittredge**, Associate Dean of Workforce Development at NCATC member Sierra College, was recognized as Community Partner of the Year by the Girl Scouts Heart of Central California Council. She is the Statewide Project Manager of CCC Maker, a California Community College Chancellors Office initiative building community college educational makerspaces.



## 2018 NCATC Innovation Award

NCATC is pleased to announce the 2018 **NCATC Innovative ATC Workforce Development Award**, sponsored by **NOCTI**.



This award recognizes instructors, faculty, administrators, and industry partners who have designed and implemented significant innovations that have led to technical workforce employment gains, upskilling, and/or national certifications.



### *Guidelines for Submission and Eligibility*

- Nominations open only to NCATC college members and/or partners and Strategic Partner Alliance (SPA) members
- A nominator can submit only one application.
- Apply [here](#). Download award flyer [here](#).

Recipient is expected to attend the award luncheon at the NCATC 30th Anniversary Fall Conference on Thursday, Sept 20, at the Cleveland (OH) Hilton Downtown Hotel. NCATC will provide a complimentary conference registration, two nights' lodging, and airfare.

### **Entry Deadline:**

June 15, 2018, 5:00 P.M. EDT

### **Award Notification:**

July 15, 2018

**Questions?** Marilyn Barger, NCATC Innovative ATC Award chair, [mbarger@fiate.org](mailto:mbarger@fiate.org)

**Need assistance?** Holly Rolf, [holly@ncatc.org](mailto:holly@ncatc.org) ♦



## Learn Work Earn Program Encourages Apprenticeships and Dual Training Programs in Advanced Manufacturing



**South Central  
COLLEGE**

In 2015, South Central College received a \$15 million U.S. Department of Labor grant on behalf of the Minnesota Advanced Manufacturing Partnership (MnAMP), a consortium of 12 Minnesota State system colleges and two Minnesota State centers of excellence. Since then South Central College, the lead institution for MnAMP, has leveraged the grant to develop the statewide Learn Work Earn program, which focuses on building and sustaining career pathways in advanced manufacturing.

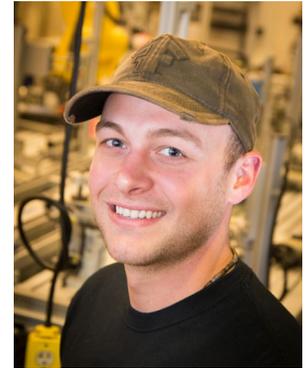
Learn Work Earn began promoting registered apprenticeship and dual-training programs in advanced manufacturing during fall 2016. Building on the successes seen during short-term, summer internships, Learn Work Earn provides students with the opportunity to work in the field while completing a college degree or industry credential. This approach, which has been used by trade unions in the past, is being endorsed by government, educators, and employers alike as a successful strategy for developing today's workforce.

Even more exciting is Minnesota's support for expanding these programs to fields that fall outside of the traditional apprenticeship careers. (Think advanced manufacturing, health care, agriculture, and IT.) The state has made this a priority, creating grant opportunities like the MN Apprenticeship Initiative and PIPELINE Program to support employers and students as they venture into this new territory. Such programs cover set-up costs, tuition, fees, and books, allowing students to complete SCC's Learn Work Earn programs with minimal debt.

Since fall 2016, 33 students from SCC's North Mankato and Faribault campuses have participated in apprenticeships or dual-training programs at nine regional manufacturing companies. Students enroll in the program of their choice—mechatronics, machining, or welding—and work with their employer to set a class and work schedule that fits their needs. Throughout their program, they work and practice technical skills on-site with an experienced mentor

while completing their classwork. This allows students to take the skills they learn in class and apply them in real-world situations.

Jones Metal, Inc. was one of SCC's first dual-training partners, enrolling a current employee who was taking mechatronics courses into the Learn Work Earn program. "The flexibility of the dual-training program is something we really appreciate," explains Jones Metal HR Manager, Valerie Bentdahl. "It's great to be able to provide on-the-job training to our specifications after they learn the basics in the classroom at SCC."



The ability to supplement their internal training with SCC's dual-training program allowed the company to plan for a job opening in their maintenance department by upskilling Eric Berkner, one of their current employees. "The apprenticeship program gave me the experience I needed to move into my current job as a Maintenance Technician at Jones Metal," says Berkner. It provided an opportunity for on-the-job training and allowed me to set up a pathway for advancement at the company." Berkner's successful completion of the program has piqued the interest of Jones Metal employees, resulting in requests from others to follow a similar path. "We're looking forward to expanding the number of employees who benefit from this training," says Bentdahl. ♦

**LEARN WORK EARN**

**A Minnesota Advanced Manufacturing Partnership Project**

• "Industry 4.0," continued from page 1 •

- Grand Rapids Community College, MI
- Ivy Tech Community College, IN
- Lorain County Community College, OH\*
- Pellissippi State Community College, TN
- Reading Area Community College, PA
- Thomas Nelson Community College, VA
- Westmoreland County Community College, PA

\*Cuyahoga Community College and Lorain County Community College are partnered on a joint project to serve one community. The cohort consists of eight communities and nine community colleges.

AACC and NCATC will help improve the content and processes for education and training on behalf of the employment pipelines for the selected communities through asset identification, community preparation, and identification of promising practices in advanced technology and manufacturing for the incumbent and future workforce pipelines in the U.S. This program will provide technical assistance to the cohort in diverse areas such as cybersecurity, simulation, system integration, data analytics, artificial intelligence, IOT, additive manufacturing, and robotics. ♦

### Register Now for "Summer with Siemens" Workshops

Extremely popular, the Summer with Siemens Workshops continue to grow with new participants. These hands-on technical workshops introduce school instructors to core industrial automation technologies. All workshops are "tuition free" to NCATC Members.

Most workshops focus on Siemens S7-1200 PLC and touch panel displays featuring Siemens STEP 7 TIA Portal software. Participants will receive a starter-kit from Siemens including PLC and software. We have added advanced and Variable Frequency Drives workshops!

To register, go [here](#).

**SIEMENS**

## Venturing into Bachelor's Degrees

Originally published in the Community College Daily on March 21, 2018. Used with permission

Three Ohio community colleges this week were approved to be the first in the state to offer select bachelor's degrees.

Lorain County Community College (LCCC), Sinclair Community College and Cincinnati State Technical and Community College received state approval for their initial four-year degrees: LCCC will offer an applied baccalaureate in microelectronic manufacturing; Sinclair will offer two bachelor's degrees, in aviation and in unmanned aerial systems; and Cincinnati State also will offer two baccalaureates, in land surveying and another in culinary and food science.

"This is one of the most important innovations in education in Ohio in our history. Mark this day," said Sinclair President Steve Johnson.

LCCC already offered a few select bachelor's degrees through a university partnership. But Tuesday's announcement marks the first time it will offer baccalaureates on its own.

"We heard the needs of employers and responded," said LCCC President Marcia Ballinger. "This is all about advanced manufacturing and growing a talent base to help companies not only compete but grow and thrive, especially as new technologies emerge."

Although there are other engineering technology programs in LCCC's service area offered at four-year institutions, there were none in microelectronic manufacturing, according to the Ohio Department of Higher Education.

"There was clear evidence of collaboration and agreements with multiple employers, including a paid internship program with employer commitments to hire interns and graduates of the programs," state Chancellor John Carey wrote in a letter to the college notifying it of the state approval.

The three colleges still need approval from their accreditor, the Higher Learning Commission, before they can offer the degrees.

### *Building on Its Success*

In 2014, LCCC launched the state's first associate degree program in mechatronics technology with a focus in micro electromechanical systems (MEMS). The program is one of only 16 in the United States and the only one of its kind in Ohio.

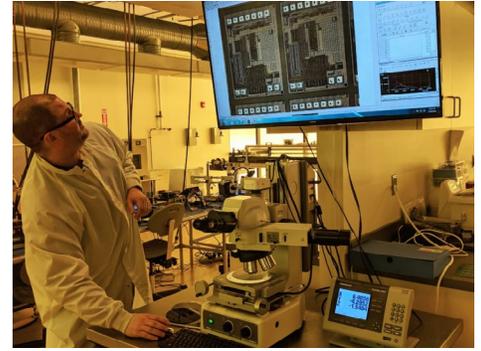
"We have a 100 percent placement rate for our current mechatronics technology associate degree," said Johnny Vanderford, LCCC assistant professor and project manager for the mechatronics technology program. "Now we will be able to offer our students the opportunity to complete a pathway from certificate to bachelor's degree in this highly specialized and in-demand field."

Gov. John Kasich has set a target to have 65 percent of the state's workforce earn an industry-recognized credential or degree by 2025. He had introduced legislation several times to allow community colleges to offer baccalaureates in select fields. State lawmakers finally passed a bill last June. Subsequently, six community colleges put forward proposals that had to demonstrate employer demand among other criteria.

### *A Personal Story*

Sherry Washington, who spoke Tuesday at a press conference hosted by LCCC, said she was motivated by her family to pursue an applied bachelor's degree. The 45-year-old enrolled in the MEMS associate degree program in 2017 as she faced her last week of

unemployment benefits. Washington had moved to an apartment with her two children and subsequently lost her job. She saw a flier for the MEMS program at the local Ohio Means Jobs center and decided to apply — a decision that she says changed her life.



"I could go to school part time and work part time, and in a couple of years, I would have an associate degree. How could I go wrong?" she said.

Washington was quickly hired as an intern at SMART Microsystems, which provides custom assembly services for industry and is housed in the same building as the MEMS program. She has since been hired as a part-time engineering technician and is earning enough to provide for her children while she completes her degree. She plans to continue at LCCC and earn her bachelor's in microelectronics.

"This program has changed my life," Washington said.

More than half of those who are enrolled in MEMS classes are non-traditional students, according to LCCC's Vanderford.

"Some have degrees from other colleges but couldn't find a job in their fields and want something that's going to make them more marketable in the job market," he said. "Now we can help them get even farther ahead by offering this applied bachelor's degree." ♦

## Stratasys Extreme Redesign Challenge NCATC Winner Announced

A trio from Mott Community College in Flint, Michigan, is the NCATC scholarship winning



team in this year's Extreme Redesign Challenge. Kaylee Spears, Chase Brokaw, and Myles Archambeau are all working toward or are recent graduates of the CAD-based degree programs at MCC. Their shared interest in design thinking and the iterative process of rapid prototyping helped the team to bring their idea for a multi-purpose cooking utensil to life. [Source: [Stratasys Blog, April 19, 2018](#)]



## Customization of TechWorks Onsite Training Improves Outcomes

A banner that reads “Lundin Learning Center” hangs in the machining lab at TechWorks, at Rock Valley College’s Samuelson Road Center in Rockford, Ill. TechWorks, a Rock Valley College (RVC) accelerated foundational skills training program, is a seven-week class that provides skills and credentials needed to qualify for Computer Numerical Control machine operator and setup jobs. It has been managed by RVC since March 2015, but was the vision of founder Jon W. Lundin back in the 1990s.

TechWorks continues to operate through the mission that Lundin created, which was helping people who are unemployed, underemployed, starting out, or changing jobs or career paths, and providing them with the foundational skills for CNC mill, lathe setup, and operation. Students enrolled in the program receive instruction and training in soft skills, including how to write a resume and interviewing. In addition to blueprint reading, shop math, universal blueprint symbols, and machine programming language, they also receive hands-on experience working with the CNC machines. Students who successfully pass the National Institute for Metalworking Skills (NIMS) exam receive credentials in Measurement, Materials, and Safety and CNC Mill or Lathe Programming Setup and Operations. To date, TechWorks has issued approximately 600 credentials with the majority of students receiving two credentials each. The NIMS credential is recognized both regionally and nationally by the manufacturing industry.

TechWorks graduates have bright futures, and the job outlook is promising. According to the U.S. Bureau of Labor Statistics, employment of computer-controlled machine tool operators is expected to grow by 15 percent, and CNC machine tool programming jobs may increase by 28 percent between 2018 and 2022. In comparison, the projected growth for all occupations is 11 percent. CNC operator is one of very few occupations experiencing growth.

### TechWorks Onsite Training

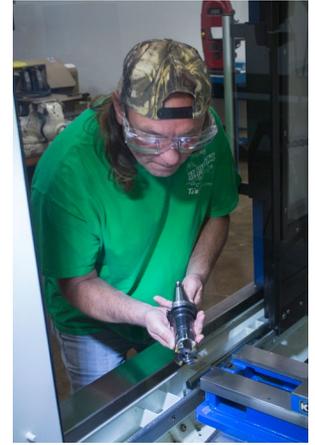
The flexibility and expert training team at TechWorks allows companies to get their training needs met onsite. Improved outcomes from onsite training are accomplished through a customized curriculum, which includes employees being trained on their own equipment. Issues that employees are experiencing with equipment or products can be resolved accurately and efficiently as the

employee and TechWorks trainer work together toward a solution. Gunite, the oldest foundry in Rockford, has contracted with TechWorks annually to assist with training for their Op 2 technicians.

Gunite’s Human Resource Manager, Ron Teliszczak, says, “Our training relationship with TechWorks is critical for our internal skill development. Having the training executed onsite keeps costs down with continuous success since our employees are being trained in their own environment.”

Some companies have employees who are in need of additional training or refresher training that is applicable to their business operation. Ford Tool in Loves Park, in business over 40 years specializing in metalworking and precision machining, also utilizes onsite training from TechWorks.

“Gordy Blaisdell does a great job of understanding our exact needs and customizing the curriculum to meet those needs,” says Ford Tool’s Human Resource Coordinator, Ginger Elsasser. ♦



## Apprenticeship Partners Host National Forum



More than 70 industry, education, and workforce leaders gathered at a national forum highlighting apprenticeships in manufacturing, with a special focus on additive manufacturing.

The Robert C. Byrd Institute (RCBI) and America Makes organized the March 6 event at Youngstown State University. The National Coalition of Advanced Technology Centers is a partner in RCBI’s

Apprenticeship Works, a national initiative focused on advanced manufacturing.

The featured speaker at the “Expanding Apprenticeship through Apprenticeship Works” event was Eric Seleznow, senior advisor to Jobs for the Future. Other speakers included Mike Hripko, associ-

ate vice president of research at Youngstown State University, and Lucinda Curry, workforce director at RCBI.

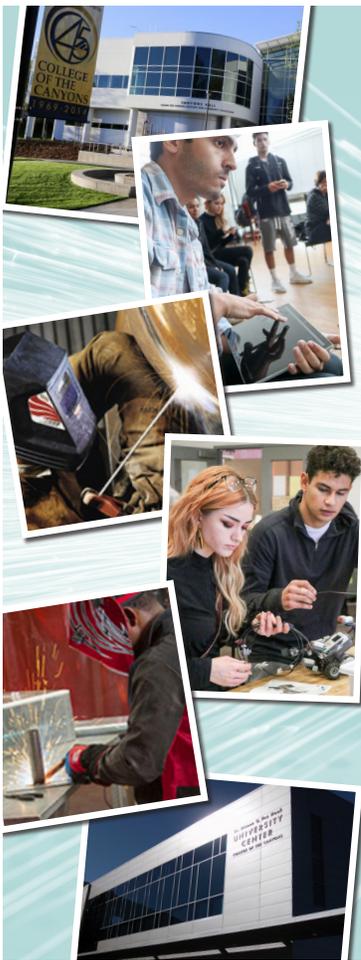
Representatives from three manufacturers—Martin Engineering, Weyerhaeuser, and Butech Bliss—shared insights about the benefits and challenges of apprenticeship in advanced manufacturing.

A highlight of the event was the launch of the nation’s first occupational framework for additive manufacturing (3D printing).

Once approved by the U.S. Department of Labor, the framework will guide apprenticeships for 3D printing technicians. NCATC assisted with the development of the framework, which is expected to contribute to a more skilled workforce in additive manufacturing.

Apprenticeship Works assists community colleges and manufacturers in building and expanding apprenticeship programs, utilizing funding by the DOL’s American Apprenticeship Initiative. For more information, contact Lucinda Curry at [lcurry@rcbi.org](mailto:lcurry@rcbi.org). ♦

## Apprenticeship *works!*



June 4–5, 2018  
**NCATC Summer Workshop**

Santa Clarita, California

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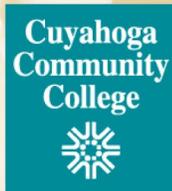


## September 19–21

**NCATC 30th Anniversary Fall Conference** Cleveland, Ohio

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