



From the Director ...

NCATC Friends and Colleagues,

The NCATC Strategic Partners Alliance (SPA) has not been the focus of my newsletter columns in the past, so in this issue, I'd like to highlight what a robust, actively involved, and supportive group of organizations — 32 at the moment — the Alliance is. These corporate-level members offer many benefits to member colleges and are a big reason why our national events are so well received and attended. The SPA is comprised of forward-thinking advanced technology training experts and workforce development professionals who continually collaborate with NCATC to offer our member colleges the best value and benefits in competency-based education and training.

Strategic Partners Alliance members include:

AACC, ACTE, Amatrol, America Makes, Association for Manufacturing Technology (AMT), Cengage, CORD, DMDII, EdgeFactor, ETA International, FANUC, FESTO/Lab-Volt, Fabricators & Manufacturers Association (FMA), HAAS/HTEC, Hampden Engineering, Inc., Innovate-Educate, Intelitek, Lincoln Electric, MSSC, NACCE, NACFAM, NIMS, NOCTI, NC3, Rockwell Automation, Rexroth-Bosch, SIEMENS, Sandvik-Coromant, SpaceTEC, Stratasys, Opus-Works/The Quality Group, and Tooling U-SME.

As an **Affiliated Council** for the **American Association of Community Colleges (AACC)** and active member of their Economic and Workforce Development Commission, you will always find NCATC the go-to source for timely information about workforce activities across the country as well as member benefits, resources, technology news, events, and ever increasing value-added benefits from our SPA members.

The NCATC Board of Directors and staff look forward to seeing you **October 11 – 14** at the 2016 Fall Conference in the Chicago area — in partnership with the **Fabricators & Manufacturers Association, International (FMA)**, and hosted by **Harper College**. This NEW conference model will strengthen our partnership with the manufacturing community and bolster our education and training

network's best and promising practices in advanced technology workforce development.

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 ◆



BridgeValley Immerses Students and Teachers in STEM Economy

Jeff Wyco, Bridge Valley Community College

We are certainly living in the technology age. As I meet with industry partners from a variety of sectors, the one theme that repeatedly emerges from these conversations is the growing role of technology and data. Whether it's manufacturing or healthcare, data is being captured in nearly every process to increase efficiency. Likewise, automated processes are increasing product consistency, quality, and profitability.

Each technical innovation to shape an industry inevitably creates a demand for professionals who can draw on a foundation of math, science, and engineering fundamentals to quickly analyze a problem and create a solution to keep vital systems online or a multi-million dollar production line operating. Often the availability of these types of individuals in an area can be the determining factor in attracting new employers to the region. This illustrates why, at BridgeValley, we view STEM education and outreach as a vital component of our mission to support economic development in our community.



Unfortunately, BridgeValley's recruiters are facing a lack of awareness, preparedness, and interest in STEM majors among high school students. To address this issue, BridgeValley leadership partnered with local education initiatives to create a strategy to both spark interest

in students while concurrently supporting local educators. This plan has led to the creation of a summer camp for students, and continuing education opportunity for teachers.

BridgeValley created the STEAM Academy as an annual opportunity for students to spend a portion of their summer having fun "imagining and making" while investigating opportunities for STEM-related careers. The STEAM Academy focuses on experiential learning aimed at fostering students' natural curiosity and creativity with courses such as:

- Computer Game Development
- 3-D Engineering / Design / Printing
- LEGO Robotics
- Filmmaking and PhotoShop
- Rocket Building
- Web Page Development
- Coding



Launched in 2015, STEMersion is an initiative of BridgeValley, the Education Alliance, and the West Virginia Manufacturing Association to provide a one-week professional development experience for teachers. Designed



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GCSC FabLab Update

Steve Dunnivant

It's been an interesting year at the Advanced Technology Center of Gulf Coast State College. New leadership has substantially changed the management and operation of the ATC. In the midst of significant change the facility continues to serve the college, community, and region. The nation's only "Pledge Model FabLab" saw its first return from supported entrepreneurs in the form of a scholarship donation and the program's first funded internship embedded within a start-up. Two of the entrepreneurs within the pledge model reached capital formation in excess of \$1.4 million. Over 13 start-ups have emerged creating about 50 jobs. That's a small start but worth mention. According to Fortune Magazine, millennials are discovering entrepreneurship significantly earlier than boomers did (<http://fortune.com/2016/02/20/millennial-entrepreneurs-study/>). The number of establishments created less than one year old is on a significant rise since 2010, with over 3 million jobs created in 2015 alone (<http://www.bls.gov/bdm/entrepreneurship/entrepreneurship.htm>). It's clear that our continued efforts to support entrepreneurs should be a focal part of an overall economic development strategy.

As this one-of-a-kind program continues, it will be several more years before the college's foray into intellectual property grows further. Given enrollment declines across higher education, is it time for every college to open a fab lab? Can incubators and accelerators embedded in colleges become significant sources of nontraditional revenue for our institutions? It will take consistent guidance and the evolution of local entrepreneurial ecosystems backed by capital to sustain such a movement. Its ties to advanced

technology are clear, from 3D rapid prototyping, advanced manufacturing, and cybersecurity to emerging unmanned systems. Industry recognized certifications hold a defined value. But they mean nothing if companies cannot direct the resulting skills and talent to profitable endeavors. Even the largest corporations fully understand the value of innovation. Many struggle with adopting a corporate culture embracing change. Higher education is no different. So stay tuned my friends and colleagues. It's highly likely that further shift is in store for all colleges and universities. Fostering and supporting entrepreneurial ecosystems may yet prove to be more than icing on the cake. It may well be the flour and water that feeds our future.

Pictured below is entrepreneur Jeff Elkins with "The Duck" remote thruster control for FlyBoarding developed at Gulf Coast's ATC. ♦



T.E.A.M. Center

Nick Graff, Dallas County Community College District

Teamwork is always a positive thing: Getting people to move cohesively and in sync, which results in a better quality product or system than that group acting disconnected or individually.

Richland College in Richardson, Texas, one of the key institutions in the Dallas County Community College District (DCCCD), has created its own T.E.A.M. This T.E.A.M. plans to create results and synergy more positive than individual pieces.

The new T.E.A.M. Center at Richland College — Technology, Engineering and Advanced Manufacturing — enhances the college's ability to deliver teaching, training, learning, and community building. It also contributes to addressing DCCCD Chancellor Dr. Joe May's vision of being part of the growth of the Greater Dallas economy and making an impact on the sizable number of residents — approximately 25% of Dallas County — living below the poverty level.

Focusing on curriculum and training programs it already offers — Machining (CNC), CAD/CAM, Electronics, and Robotics — the T.E.A.M. Center was the recipient of federal, state, local, and private funding:

- \$1.5 million portion of equipment funding provided by a \$3.2 million US Department of Labor Employment and Training Administration (DOLETA) Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant
- More than \$2.7 million from the Dallas County Community College District (DCCCD) Chancellor's Career Ladder Funds
- \$1.6 million from Richland College's institutional funds

• A gift of \$500,000 from Texas Instruments Incorporated (TI) Led by Machining Instructor, Brian Fleming, and Electronics Technology instructor, Kory Goldhammer, the T.E.A.M. Center offers:

- Advanced Manufacturing Technology (A.A.S.)
- Electronics/Robotics Technology (A.A.S./Certificate)
- Electrical Engineering Technology (A.A.S.)
- CAD (2 Semesters)
- CNC/CAM Engineering Technology (2 Semesters)
- CNC, CAD/CAM Engineering Technology

As a bonus, all the courses allow for both credit and non-credit students to participate cohesively and concurrently. This lends more of a "real-life workplace" project-based feel to the classes instead of the traditional "let's get a good grade" mentality for both students and faculty. According to Manufacturing program advisor, Craig van Hamersveld, "Having the lab available to industry for [their] employees to utilize for professional development is a great way to connect education and manufacturing companies."

The Richland program offers a wide array of industry-recognized standardized credentials for machining and tool-making, CAD/CAM, robotics, automation, electronics, PLC's, hydraulics and pneumatics:

- For Machining-NIMS Level I & II, MasterCAM CNC mill and lathe, AutoCAD
- For Electronics/Robotics-ISCET (International Society of Certified Electronics Technicians)

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after a program that was successful in North Carolina, it includes seminars with top STEM businesses in the region that enable educators to discover what current students will face in today's workplace. The summer professional development program is designed to help 25 middle and high school science, technology, or math teachers gain a more relevant understanding of the numerous professions that require science, technology, engineering, and math skills. Participating teachers will take this real-world experience back to their classrooms and impact their instruction while encouraging their students to follow STEM career pathways.

STEM education is vital to sustained economic growth because graduates of these programs are among the highest paid and

fastest growing careers in the nation. Often the availability of these types of professionals in an area can be the determining factor in attracting new employers, and creating high-paying career opportunities for graduates. BridgeValley has seen increases in the number of students entering STEM programs, and is confident these outreach initiatives, coupled with industry partnerships, will help continue that trend. The ultimate goal is to create an innovative marketplace which moves our region's economy forward while providing stable and high-paying career opportunities for graduates. ♦



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These credentials certify a level of skills and proficiency which allow a quick turnaround for beginning level and lower-skilled students to enter/return to the workplace.

According to the Department of Labor, the purpose of TAACCCT grants is to close educational gaps between potential employees and employers in growing industries, such as advanced manufacturing.

"The T.E.A.M. Center is fully equipped to provide students exceptional hands-on, industry-specific, degree-focused, problem-based learning experiences and career training with stackable industry-recognized certifications," said Kathryn K. Eggleston, Ph.D., Richland College president.



Faculty and college administration see the T.E.A.M. Center with all the new equipment and state-of-the-art labs as a major attraction for increasing enrollment, saying they hope to see significant spikes in headcounts this fall and certainly for the upcoming semesters. They also anticipate the business community and the community in general will view the Center as a jewel and one which will help lure more top notch talent to the workplace upon completing coursework at Richland College.

They acknowledge that marketing and "getting the word out" to businesses, high schools, and workforce assistance programs is always a challenge. But with on-going funding, consistent foot traffic, and the T.E.A.M. Spirit, the future should be bright for the T.E.A.M. Center. ♦

CMCC Earns Three Grants to Assist with Precision Machining Expansion

Central Maine Community College (CMCC) has been awarded three major grants totaling 2.85 million dollars to help fund the renovation and expansion of the College's Precision Machining Technology (PMT) lab on its Auburn campus. The facility will be named the "Gene Haas Precision Machining Technology Center."

The College expects to begin work on the project in 2017. The first phase will involve an interior renovation of over 5,000 square feet, including the relocation of the quality control room, offices, computer class, and locker room to update and improve overall functionality. Phase Two will be the construction of a 3,600 square foot addition to accommodate recent equipment acquisitions, and improvements to existing electrical power distribution, lighting systems, and the mechanical ventilation system.

The Gene Haas Foundation has awarded a grant of one million dollars toward this expansion project. Founded in 1999 by Haas Automation founder and Stewart-Haas Racing co-owner Gene Haas, the Haas Foundation has granted more than \$12 million to institutions that champion advanced manufacturing education. The Haas Foundation has been a generous supporter of the PMT program and machinist-based continuing education at the College for many years.



Kathy Looman, center, administrator for the Gene Haas Foundation, and Peter Zierhut, right, vice president with Haas Automation, present a check for one million dollars to Scott Knapp, president of CMCC.

The formal presentation of the award was made at the Annual Manufacturing Educators Conference held at CMCC on July 18-21. In collaboration with the Haas Technical Education Center (HTEC), the college hosted this international event for almost 200 CNC (computer numeric control) precision machining instructors from across the United States, Canada, and South Africa. Best CNC education practices, program building and innovation, attracting students, and developing employment opportunities were among the topics for workshops and breakout sessions.

According to Bob Skodzinsky, manager of the HTEC Network, machining programs in more than 1,800 schools utilize Haas equipment. The conference enabled instructors to network and to learn the latest trends in precision manufacturing. CMCC was consid-

ered an excellent site for the event in part because of the size and reputation of its PMT program. The HTEC Network has also named CMCC the northeast training center for CNC teachers.

The U.S. Department of Commerce's Economic Development Administration (EDA) has awarded a grant of \$1.6 million to CMCC for assistance with the PMT expansion. The grant was announced at the University of Maine on July 29 by Deputy Assistance Secretary of Commerce Matt Erskine, who cited this and four other grants as part of the EDA's significant investment effort in Maine to help boost the state's economy. The CMCC grant was the largest of the five announced by Erskine.



Secretary Erskine noted that CMCC's PMT program is the largest in the Northeast and operates year-round to accommodate both students and businesses. Companies use the facility for employee training, product development and access to specialized equipment. The expansion project at CMCC is a timely one given that area companies expect to need an additional 900 precision machining employees in the next five years.

Lastly, the Northern Border Regional Commission has awarded the College a grant of \$250,000 toward the PMT expansion as part of \$2 million in funding it is providing to upgrade infrastructure and provide job training skills across the state.

The commission is a federal-state partnership Congress created in 2008 to help alleviate economic distress and encourage private-sector job creation throughout the northern counties of Maine, New Hampshire, Vermont and New York. The funding for projects in Maine was awarded through the commission's 2016 Economic & Infrastructure Development Investment Award program, which is providing over \$7.4 million in grant funding to support projects in the commission's four-state service area.

The expansion of the PMT facility will enable the program to build on the significant accomplishments funded previously under grants from the National Science Foundation (NSF). The first grant in the amount of \$1.4 million was awarded to CMCC in 2008 to fund the Virtual Ideation Platform (VIP) project. The result of that effort was the creation of a "virtual collaboration infrastructure," an environment in which both design and precision machining students work in concurrent or virtual product design and development. "Too often, design and precision manufacturing programs had limited contact with each other; students seldom saw the connections," noted Diane Dostie, CMCC's dean of corporate and community services, who also spearheaded the Haas grant effort. "The VIP project addressed that problem by enabling faculty and students to design and develop product concepts and the requisite curricula over the internet."

A second NSF grant in the amount of \$900,000 allowed the college to provide educators and industry personnel nationwide with the necessary skills for advanced CNC machining, programming and metrology. "We basically wrote a new curriculum for 3D machining and rewrote a curriculum for CNC machining that address industry needs in high-end skills that are directly applicable to the precision

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Do You Need to Build Awareness and Change Perceptions for Advanced Manufacturing Pathways?

With the incredible technology and diverse careers available in modern manufacturing, the opportunities for the next generation are endless. So why aren't there lines of students waiting to enroll in technology programs? Why are teachers facing empty seats in their classrooms and manufacturers constantly searching to find new hires? The problem lies in the lack of public awareness and antiquated perceptions of manufacturing careers. The heart of the Edge Factor team is to equip teachers and business leaders with resources to inspire students to see manufacturing for what it is: an industry where ideas become reality. A world of opportunity filled with teams of makers who are using technology to change lives and build the world.

Edge Factor tells extraordinary, real-life stories and creates accompanying eduFACTOR resources that reveal manufacturing careers and advanced technology. These resources inspire students, make STEM relevant and fill classrooms with students who are excited to



learn the skills they need to launch well-paying careers. Our team of interactive resource creators have built hands-on CNC and 3D printing projects, "Geek Out" technology videos, turnkey event tools, STEM activities, career pathway videos and activities, parent resources, virtual field trips, and much more. With content constantly going live, there's always something new.

All our media and tools are available through our campus-wide membership platform eduFACTOR. If you are looking for multimedia resources to give an adrenaline shot of inspiration into your programs and fill your program with engaged students, eduFACTOR is for you. Contact Toni Neary at tneary@edgefactor.com today. ♦

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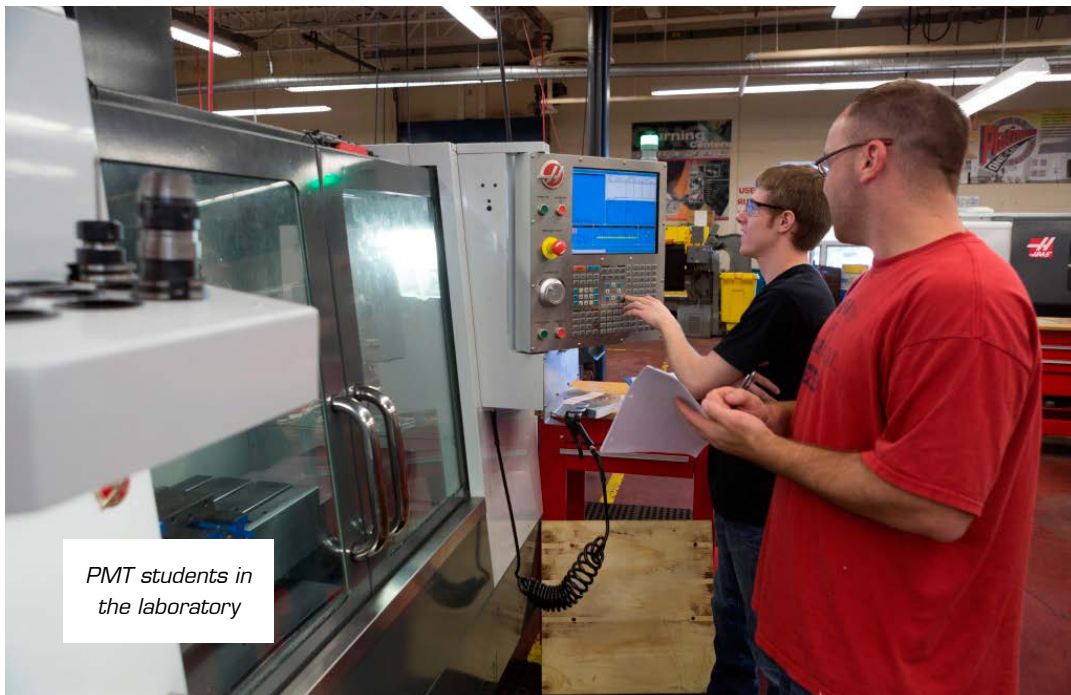
manufacturing environment," said Devin Watson, instructor in the PMT program at CMCC. "Long term, we want to be instrumental in ensuring the development of a more highly skilled and adaptable workforce and ensuring that manufacturing firms in the region are able to compete in the global marketplace."

The PMT program at CMCC offers a two-year associate in applied science degree, a one-year certificate, and an advanced certificate. Students are trained in conventional and CNC machining. Graduates of the program are employed as machine operators, CNC machinists, tool and die makers, quality control inspectors, machine assemblers, machine tool designers, CNC programmers or field service representatives.

Dostie noted that PMT students are in high demand and that many of them have jobs at the end of their first semester on campus.

"In addition, we do a lot of training for our regional manufacturers who need to upgrade the skills of their workforce, and we're seeing increased demand for that internal training. The expansion of the PMT program will help support the growth of good-paying, high technology jobs in the region and throughout the state," Dostie added.

"This is an important industry in our local economy, and having skilled machine programmers helps manufacturers reduce downtime, save money, and bid for quality work," said Scott Knapp, president of CMCC. "Since 2010, CMCC has provided customized training to a total of 34 businesses and 626 employees. Whether through basic skills-based training or advanced certificate education, CMCC is advancing the skills of machinists in the regional workforce and enabling manufacturers to be more competitive in the global economy." ♦



PMT students in the laboratory

NCATC Fall Conference

October 11–14, 2016

Conference events at Harper College, Palatine, Illinois, and the Hyatt Regency Schaumburg-Chicago

Hosted by



In partnership with



CONFERENCE HIGHLIGHTS

Program Jam-Packed with Innovations

We've combined the best of all worlds: on-site sessions at Harper College's amazing advanced technology labs, a full day of concurrent sessions featuring the nation's leading Advanced Technology Centers, and immersive industry tours.

Powerful Keynotes

You'll hear from industry leaders in workforce development and training, including **Jeremy Bout**, Producer and Host of **EdgeFactor**, a multimedia powerhouse known for creating inspiring stories in which Hollywood visuals meet CTE, manufacturing, and STEAM to challenge perceptions and spotlight amazing careers.



Can't-Miss Industry Tours

NCATC attendees will visit their choice of the following tours of unique industry leaders in safety science, food processing equipment, and digital manufacturing.

Underwriters
Laboratories



C. Cretors & Co.



DMDII
Digital Manufacturing and
Design Innovation Institute



Great Networking Events

NCATC conferences always maximize networking opportunities and this fall's conference is no exception! Network with our Strategic Partner Alliance member companies at Harper College's impressive Wojcik Conference Center and with your college peers at our new Evening Jazz Social at the Hyatt hotel.



Hotel

The Hyatt Regency Schaumburg-Chicago is a relaxing northwest Chicago suburban retreat—a contemporary, full-service hotel just steps away from unique shops and restaurants. Reserve your room at our conference hotel by Sept. 23.



Register Today!
ncatc.org