



From the Director ...

NCATC Friends and Colleagues,

As an Affiliated Council for the **American Association of Community Colleges (AACC)** and active member of their Economic and Workforce Development Commission for over 25 years, NCATC continues to work on many key facets of Advanced Technology Center (ATC) contributions to our country's technical workforce needs.

This summer, NCATC has been actively involved with initiatives that have brought together many of the best community and technical colleges including our members Mott Community College, Lorain County Community College, Cuyahoga Community College, Sierra College, Fox Valley Technical College, Edmonds Community College, Westmoreland Community College, and Northampton Community College, to support and contribute to the first ever **White House Maker Faire**.

NCATC continues to work closely with America Makes, DOL, NSF, and MAKE to ensure we link our member networks to the best Maker Spaces, Fab Labs, and 3DP/RP/AM resources in the country, ensuring promising practices are shared, benchmarked, and continuously improved.

At the 2014 NCATC Fall Conference, many of our sessions, strategic partners, and initiatives will continue to showcase the best 3DP/RP/AM curriculum, certificates, degrees, and CEU-based training programs in the country. We firmly believe that 3D/RP/AM is quickly becoming the "Third Industrial Revolution."

NCATC is proud of its 28 Strategic Partner Alliance (SPA) members that you can learn more about on our website under the Strategic Partners tab. The three newest SPA members to join our expanding technical workforce development network are Stratasyss, HAAS, and Cengage.

Please mark your calendars for the 2014 NCATC Fall Conference in Houston, Texas, hosted by Lone Star College (LCS) on October 8-10. LCS will showcase its new Energy and Advanced Manufacturing Centers. Looking forward to seeing you ALL there!



Craig

J. Craig McAttee
NCATC Executive Director ◆

Strategic Partner Alliance Spotlight

Tooling U-SME Partners with Statewide Consortia to Advance Manufacturing

To advance manufacturing in local communities, Tooling U-SME, a leader in manufacturing training and development, has worked closely with colleges to submit Department of Labor (DOL) Trade Adjustment Assistance Community College and Career Training Grants Program (TAACCCT) proposals and implementation plans once approved.

"Every day we work with manufacturers to understand which skills they require and use that input to help schools ensure their students are obtaining the knowledge and skills needed, as quickly as possible, to be immediately employable," said Gretchen N. Schultz, workforce development coordinator, Tooling U-SME. "Initiatives in Missouri and North Carolina are inspiring models."

Missouri "MoManufacturingWINS" Program

Missouri is leading the way when it comes to building a skilled workforce to meet the needs of large and small manufacturers in the state. This effort has been propelled by a four-year U.S. Department of Labor (DOL) grant awarding \$15 million to fund "MoManufacturingWINS" through September 2016.

The training innovations, implemented by a nine-member consortium of public two-year colleges, include:

- Accelerated instruction by moving from semester-based programs to modularized training and stacked credentials that allow students to get short-term training for now that can be applied as credit hours to an overall degree long-term.
- Industry-recognized credentials certification endorsed by the National Association of Manufacturers such as the National Career Readiness Certificate, The National Institute for Metalworking Skills (NIMS) and the Manufacturing Skill Standards Council (MSSC) that validate students' mastery of skills in specific areas of manufacturing.
- Incorporation of more online and hybrid training to make it easier for busy adults.

Tooling U-SME maps its online training classes to the NAM Skills Certification System. It also built a hierarchy and structure for Tooling U-SME's Learning Management System that easily administers, delivers, tracks, and reports the training activity of learners.

To date, thousands of classes have been completed and credentials awarded consortium wide.

North Carolina Advanced Manufacturing Alliance

With a vision of being the #1 state in the U.S. for manufacturing, North Carolina has initiated an innovative program called the North Carolina Advanced Manufacturing Alliance (NCAMA) to educate and train displaced and dislocated workers to fill the needs of North Carolina employers.

Using state-of-the-art equipment for hands-on training and a new approach to learning, students can earn certificates, degrees, and diplomas and be placed as interns with local advanced manufacturing companies where they can obtain

See "Tooling," top of page 6.

Don't Miss the Fall Conference: "Making It: Energizing the Manufacturing Workforce through Innovation"

This year's fall conference, hosted by the Lone Star College System in **Houston, Texas, October 8-10**, offers a strong program of keynotes, concurrent sessions, and industry tours. For program and schedule details, **download the conference brochure** from the NCATC website. Don't wait — the Early Bird registration deadline is August 31.

Keynote Speakers

- Steve Head, Ph.D., Chancellor, Lone Star College System
- Grant Almond, Sr. Vice President, Technology and Product Development, National Oilwell Varco
- Roy Alice, Director, Training and Technical Services, Stewart and Stevenson
- Lilia Correa, TenarisUniversity Regional Manager USA
- Tom Standley, Program Manager, School of Applied Technology, FMC Corporate University
- Richard Froeschle, Director, Labor Market and Career Information, Texas Workforce Commission

Industry Tours



Lone Star College ATC Tours



Lone Star College - University Park Energy and Manufacturing Institute



Lone Star College - North Harris

Concurrent Session Highlights

- Unpacking Competencies for Additive Mfg/Material Science
- 3D/Additive Mfg Curriculum, Certificates, and Workforce Development Programs
- Entrepreneurial Initiatives With 3D/Additive Mfg
- 3D Printing to Increase Enrollment in STEAM Programs
- Advanced Mfg Education for Measurement Verification
- It Takes a Village: Everyone Has a Stake, Everyone Has a Role
- Industry Partnerships: Why Employers Are Our #1 Customers
- Private & Public Partnerships (P3)
- Changing the Way America Thinks About Mfg
- Robotics Summer Camp for HS Students—A How To Guide
- After the AS Degree: Ramping Up to Multi-Axis Machining
- Building a Manufacturing Community
- Hi-Tech Camping—And No Tents!
- Michigan Advanced Technical Training
- Manufacturing and Education Collaboration
- Stackable Credentials: An Introduction and Explanation
- So, You Want to Be an ATC When You Grow Up? ♦

Register online at www.ncatc.org

Discounted room rates are available to NCATC guests at the **Sheraton North Houston at George Bush Intercontinental** (complimentary in-room Internet and parking). Please make your reservations prior to September 14, 2014, to ensure discounted rate. For more information or to make your reservations, please call 1-800-325-3535 or 1-281-442-5100 and request the group rate for National Coalition of Advanced Technology Centers.



FALL CONFERENCE

Making It: Energizing the Manufacturing Workforce through Innovation



Houston, Texas
October 8-10, 2014

www.ncatc.org

Summer Camps Broaden Student Horizons in Advanced Manufacturing

Anoka Technical College, Anoka, Minnesota, Advanced Manufacturing Camp

The Advanced Manufacturing Camp at Anoka Technical College introduces students ages 13–15 to the manufacturing industry through hands-on experience and industry tours. Participating students use the same equipment professionals use to create and manufacture their own designs. Students participate in industry tours, where they witness, and take part in, the design and production of real products.

The camp is designed to get kids into something they're passionate about, something they are happy to go to every day and something that aligns with their strengths. The students enjoy a week of hands-on activities that help them find their interests and strengths.

Participants are introduced to the entire manufacturing process—tools, welding, drafting, bending metals, using machine tools—according to Nick Graff, camp director. The goal is to help interested students find their own niches, as designers, draftsmen, machine operators, and computer programmers. The camp helps students see that they have qualities about their personalities that make them different from their peers—qualities that will help them to be successful in the workplace and in life.

This year, campers toured Productivity, Inc. in Plymouth, MN as one of their industry tours, experiencing automation, lasers and multi-axis machines up close. “We got to see a laser cutter at work, and a water jet,” reported an enthusiastic camper. The students also visited Stratasys, the 3D printing industry giant whose corporate headquarters are nearby. Camp organizers commented, “3D printing is cool, but we want to show the kids what goes on before that—the concept and the design phases. The trip to Stratasys allows us to focus more on the design process.” Students begin to look at life through a different lens. They walked around tour sites saying “hmm...wonder how they made that?” The four-day camp was a big hit with students, as evidenced by one camper’s comment, “I first thought this would be boring . . . but it’s one of the best summer camps I’ve ever been to. And that’s saying something.”

To learn more about Anoka’s advanced manufacturing camp, view their video at <http://vimeo.com/99259271>.



Bluegrass Community and Technical College (BCTC), Leestown, Kentucky, Manufacturing Career Craze Camp

This summer’s weeklong “Kids that Rip” Career Craze Camp at the Leestown campus of Bluegrass Community and Technical College (BCTC) gave 14 middle school students from schools in Fayette County a chance to design and produce their own skateboard using the expertise of BCTC’s machine tool technology faculty.

Ryan McCann, 14, a Morton middle school student, applied “rip tape” to the top of his skateboard. He created a cutout design with faculty assistance using a special laser-etching machine. “They had us create a stencil of the cutout we wanted to use and then they put it on the machine and it cut out the tape using a laser. It was really cool to watch,” McCann said.

Camp participants showed their finished skateboards to Kentucky Lt. Governor Jerry Abramson, who was on hand to inquire about their experience about what they had learned about the world of manufacturing.

“We need everyone to keep Kentucky economically viable,” said Abramson. “Without education, you don’t have options in life. There are real career opportunities you can pursue at your community college.”

The camp also included a chance for students throughout the week to tour Toyota Motor Manufacturing Kentucky, Inc. (TMMK) in Georgetown and participate in classroom visits from General Electric and I.B. Moore employees.

Certificates of participation were presented to the campers by the Lt. Governor, Dr. Augusta A. Julian, President and CEO of BCTC, and Sheila Simpson, coordinator of the camp.

The camp was made possible by an initiative from the Lt. Governor’s office in partnership with Kentucky Community and Technical College System (KCTCS), and volunteers from the Kentucky Workforce Investment Board. All 16 community and technical colleges across Kentucky are hosting career camps this summer. The camps are meant to highlight technical career opportunities in various sectors of the manufacturing, utility, and healthcare industries. ◆



Recap of the Summer Workshop at Central Maine Community College

This year's summer workshop—"Technology for ME"—was hosted on the beautiful CMCC campus in Auburn, Maine. Special thanks to NCATC board members for serving as "roving reporters" to bring you the following highlights.

Keynote Speakers

This summer's keynote speakers were Luke Livingston, president of Baxter Brewing Co., and Rick Malinowski, human resources manager for Proctor & Gamble.

During his junior year at Clark University, **Luke Livingston** started brewing beer in his dorm room, taking advantage of a brew kit he received for Christmas. After a run-in with the university administration, which later revised the student handbook because of him, Livingston went on to create Baxter Brewery, the fastest growing craft brewery in the nation. Baxter brewed more beer in its first year than any craft brewery ever. In 2011 Forbes named Luke one of the 30 most influential entrepreneurs under 30 years of age. Now brewing one million gallons per year with plans to expand, he has created an organization in which all employees are invested in the success and the culture is one focused on the quality of the product. Auburn, Maine, is also Luke's hometown and the location of his brewery.

Rick Malinowski provided a snapshot of Proctor & Gamble (P&G), an \$84 billion dollar a year company operating in 70 countries, distributing in 180 countries, and serving 4.8 billion customers. When asked about talent needs, Mr. Malinowski stressed P&G's model of "hiring the person, not the degree"—seeking a good fit between the skills and abilities a person brings with organizational need. After purchasing Tambrand in Auburn, Maine, in 1997, P&G completely changed the existing culture and use of technology. Today the plant is a model of efficiency, utilizing automated guided vehicles (AGV) and sophisticated automation. However, P&G still operates under the idea that "people are our greatest asset." P&G builds from within and stresses leadership development, limitless career opportunity, respect for people, and best-in-class training and development services. They seek people who think, demonstrate curiosity, have good mechanical/electrical and computer literacy skills, and can communicate and solve problems. ◆

Concurrent Session Recap

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

CMCC faculty presenter: Devin Watson

If you listed the most-needed skill sets in manufacturing today, it wouldn't take long to get to CNC operations, set-up, and programming. And in the words of the great Emeril Lagasse, if you want to "kick it up a notch" and include four- and five-axis experience, the demand is that much greater. There isn't a company today that would turn down the opportunity to interview someone with those skills.

Central Maine Community College recognized the need for those skills and kicked up its AAS Degree in *Precision Machining Technology* and added 16 more credits in Multi-Axis Machining, resulting in the Advanced Certificate in *Precision Machining Technology*. The Advanced program offers advanced machining theories and applications required to set up and run multi-axis machines. The development of the advanced certificate in Advanced Machining was funded through an NSF Advanced Technological Education Program.

The 16 extra credits are highlighted by an Intro to SolidWorks and Advanced Inspection Methods, including the additional emphasis on Blueprint Reading and usage of Coordinate Measuring Machines (CMM). The second semester includes use of 16 seats for Advanced MasterCAM programming, Live Tooling of CNC Lathes, and 3-D CNC Milling. The last semester of the certificate includes the training on four-axis vertical and horizontal milling centers, five-axis vertical milling centers, and live tooling lathes.

CMCC has six instructors, including four full-time. Students reserve lab time and can take advantage of the friendly hours in the evening and open lab time on Fridays. The college has one instructor for each 12 students using the machines; the program has recently doubled in size from 60 to 120 students.

According to Devin Watson, department chair, "In the first year, [the program] is written and in the second year it's all machine programming." He says the *Precision Machining Technology* program has 8-10 companies providing input as part of the Advisory Board, which meets twice a year. He says graduates of the program are seeing starting wages in the \$14-\$22/hour range.

Dealer Trax: A Partnership That Launches Automotive Students into Career Paths

CMCC faculty presenter: Carl Hinkley

In the past, Central Maine Community College (CMCC) had a traditional automotive program similar to those at many other community colleges. Three pathways were offered: a certificate, a diploma, and an AAS degree. In 1986 the program became a Master Certified NATEF accredited program. CMCC was only the third college east of the Mississippi to achieve this certification.

The automotive program at CMCC is industry driven. So when area automotive dealers said they just wanted students with the AAS degree, the college decided to focus more strongly on the AAS degree and discontinued the certificate and the diploma program.

The AAS program was then expanded to offer two pathways, one pathway for automotive light duty and a second pathway for heavy duty truck and heavy equipment.

At that time 32 students entered the program, with a one-to-16 instructor-to-student ratio.



Continued on following page



CMCC's President had had experience with a dealer-specific training program, the Ford ASSET program (Automotive Student Service Educational Training, www.newfordtech.com). ASSET includes a paid internship. Students spend eight weeks in the classroom and then eight weeks at their sponsoring Ford dealers over a two-year period that includes a summer session. At the end of two years, students earn associate degrees and valuable in-dealer experience. Students also have all the Ford certifications given in factory training. As the only Ford ASSET program in New England, CMCC draws students from all over Maine and Vermont. To qualify for the Ford ASSET program, students must have completed Algebra I and have a dealer sponsorship, a required minimum tool set, and a valid driver's license.

CMCC also offers a Dealer Trax program for students for more generic automotive training certificates. The Dealer Trax includes a nonspecific dealer co-op program, a pathway for high school students, and the option to enter the program in any semester. Entry requirements for the Dealer Trax include a 3.0 automotive tech core GPA, a 2.34 overall GPA, a dealer or independent sponsor, a required minimum tool set and a valid driver's license. CMCC offers the automotive tech core curriculum at night every semester to enable students to complete entry requirements.

Architectural Restoration Using 3D

CMCC faculty presenter: Dave Kempeskie

Dave Kempeskie from Advanced Educational Technologies LLC demonstrated how he and colleagues utilized Stratasys 3D scanner/printer technology to work with the staff of the television series "This Old House" to recreate a replacement for a ceiling medallion for a home restoration project in Arlington, Massachusetts.

Kempeskie was able to recreate the missing piece of the damaged medallion by replicating an area of the undamaged surfaces. Several medallions were created for the show. One of Kempeskie's 3D-scanned prototypes produced with a lightweight composite was ultimately chosen for use on the project.

Through triangulation and a process of reverse engineering, 3D scanning and printing technology is able to accurately reproduce objects for architectural restoration whose original designs or molds have long been destroyed.

Other uses for this technology are being integrated into the archaeological world to assist in reconstruction of missing or severely degraded artifacts. In addition, the aerospace industry has determined new ways to use 3D printed materials in aircraft vibration analysis. This same technology is being imbedded in dental scanning.

Critical Scene Management During High Stress Situations in Law Enforcement

CMCC faculty presenters: Matt Tift and David King

Attendees at this session learned how modern technology is incorporated into CMCC's Criminal Justice curriculum to help students develop demeanor and judgment for high-stress situations. Scenario-based training in use-of-force situations compels students to think on their feet and use individual decision-making and critical incident management skills.

To shoot, or not to shoot, that is the question. CMCC is in great hands with Matt Tift and David King leading its criminology and public safety officer training programs. Their classroom and training facilities mirror real-world settings by providing a detainment and prison cell area, open physical training spaces, and an advanced "Force Option Simulator Training" system.

After a brief tour of the facility spaces, conference attendees were given a run at a realistic, high-definition video scenario generator featuring live actors and laser-emitting firearms. Everything from traffic stops gone bad to active shooter scenarios in office complexes to domestic violence scenarios with children present were encountered by our group. Amidst all this drama projected on a life-size screen, Tift and King coached attendees through each crisis. These are the life-and-death decisions almost every safety officer encounters at least once in his or her career. Attendees learned that this is anything but easy. The software enables the controllers to offer multiple ends to each scenario, enabling invaluable coaching in a non-lethal setting. At the end of the session, each attendee left with a new respect for the men and women protecting our communities each day. They also left with new admiration for CMCC and its commitment to the integration of technology for students destined to protect and serve.

PETE: Partnership for Environmental Technology Education

PETE is an affiliated council of AACC, just like NCATC. PETE operates several programs that are supported by multiple Federal agencies—NSF, NIEHS, FEMA, OSHA, and the EPA. Focusing on environmental and safety education, PETE is the source for countless resources including curriculum, train the trainer certifications, disaster preparedness programs, and technical assistance. Much of the cost for faculty training is offset as long as the college is a partner and agrees to the certification and output reporting criteria. Many programs are offered including:

- Community College Consortium for Health and Safety Training
- Hazardous Material Training and Research Institute
- Community College Citizen Preparedness Program
- American Road and Transportation Builders Association Safety Training
- Tribal and Pacific Rim College Technology Education Program
- Youth in the Environment Program — NYC

To learn more, visit <http://nationalpete.org/> or contact Kirk Laffin, Executive Director, at klaffin@maine.rr.com. ♦

the necessary workplace experience for full-time employment.

"Tooling U-SME online training supports our curriculum and maps to the industry-recognized credentials and certifications, endorsed by the National Association of Manufacturers, that employers are seeking," said DeRay Cole, project manager of the statewide consortium, based at Robeson Community College.

The consortium is seeing positive results from the program, which began being implemented in October 2013 with hundreds of students completing thousands of classes. Exam scores indicate a 21% increase in knowledge gained among all students who did the coursework.

The Alliance's colleges across the state are staffed with a Success Manager who works closely with students and a Project Coordinator who works to educate the community about careers in advanced manufacturing and recruit and place students.

For full stories, please visit:

Missouri MoManufacturingWINS:

<http://www.toolingu.com/images/pdf/MOCustomerStory.pdf>

North Carolina Advanced Manufacturing Alliance

<http://www.toolingu.com/images/pdf/NCCustomerStory.pdf> ◆

Member News

Swagelok – Right Skills Now – A new program developed by the Cuyahoga Community College (Tri-C) Workforce Team, the Right Skills Now Fast-Track Training evolved from collaboration among MAGNET, Tri-C, PMPA, and Swagelok to meet the demand for skilled CNC operators. The Right Skills Now Fast-Track Training is a 530-hour program that prepares individuals for a career in the manufacturing industry. Offering

both day and evening training, the program also features an opportunity for an 8-week paid internship. Upon successful completion of the program, graduates will be offered a full-time position at Swagelok. For complete information visit the program website (<http://tri-c.edu/workforce/swagelok>) or **download the program brochure**.

Coalition News

Support for Kentucky Promise Zone – NCATC sent two delegates (Craig McAtee and Mark Manuel) along with AACC's Workforce Development Team, key industry partners such as Lincoln Electric, Trane, and Snap-On, and economic development agency staff to meet with Hazard Community and Technical College (HCTC) in July. Hazard is one of the initial Promise Zones designated by the White House and several federal agencies. Multiple federal investments will be assigned to these Promise Zones across the country.

HCTC, together with their workforce investment board, the Eastern Kentucky Concentrated Employment Program, and regional industry is designing programs now. As new members of NCATC, HCTC will expand its technical expertise and strategic linkages for many of their workforce activities. NCATC has a deep commitment to improving the technical and educational experiences of communities across the country and will continue to provide technical assistance to HCTC through our community and technical college network and industry-based Strategic Partners Alliance.

NCATC Supports First White House Maker Faire – NCATC "rallied the troops" this summer to generate over 30 letters of support and maker-related activity descriptions for the Maker Movement's inaugural Maker Faire at the White House. The Office of Science and Technology Policy worked with Carnegie Mellon, AACC, and NCATC to promote awareness, support, and best practice recognition of universities and community colleges across America that are involved with Maker Spaces, Fab Labs, Tech Shops, etc.

NCATC will lead a teleconference with the partner organizations in September to chart a strategy forward, building on the momentum our community established in June. The group will explore options to sustain the sharing of best practices and vi-

brant dialogue on Maker initiatives that have emerged over the last six months, and to explore specific steps for creating a community for advancing Maker initiatives and education. The three main objectives are currently: 1) Holding Regional and National Gatherings to Continue to Share Best Practices, 2) Forming an Alliance of Maker Schools, and 3) Working to Provide Support for Faculty and Student Development.

NCATC thanks the member institutions who responded to our call to provide letters of support and descriptions of Maker activities to White House Maker Faire coordinators. These colleges include:

Cerritos College
Charles S. Mott Community College
Crafton Hills College
Cuyahoga Community College
Edmonds Community College (MatEdU)
Fox Valley Technical College
Gulf Coast State College
Houston Community College – Northwest
Lorain Community College
Monroe Community College
Northeast Wisconsin Technical College
Northern Virginia Community College
Northampton Community College
Saddleback College
Sierra Joint Community College District
South Central College
Suffolk Community College
Tunxis Community College
Westmoreland Community College

