

2017 HTEC Americas CNC Educators Training Conference Agenda

July 10-13, 2017 • Lincoln College of Technology • Grand Prairie, Texas

**THEME: Innovative Education Solutions:
Taking Back American Manufacturing!**

➤ Monday, July 10, 2017 - Workshops & Opening Reception

NOTE: No buses needed – attendees to drive to and from LCT from hotels

- 8:00 am to 8:45 am – Registration and Lite Breakfast – Lincoln Lobby & Cafeteria
- 9 am to 12 noon; 1 pm to 4 pm – Workshops – Lincoln (ALO and AK) – Pre-Registration required
- 12 noon to 1 pm – Lunch - Lincoln Catering - Cafeteria
- 6 pm to 8 pm – Opening Welcome Reception – Blue Cypress Hotel Zara Lounge and Patio – *Join us for some casual networking time with colleagues – enjoy complementary beverages and appetizers in a relaxed, casual setting. Open to attendees, partners and spouses.*

➤ Tuesday, July 11, 2017 – at Blue Cypress Hotel (AM) and Lincoln College of Technology (PM)

NOTE: Buses leave hotel at 11:30-11:45 am from Blue Cypress Hotel to Lincoln CT**

- 7:30 am to 8:30 am – Registration and Breakfast – Blue Cypress Diamond Room
- 8:30 am to 9:45 am – Welcome, Opening Remarks and Introductions – Blue Diamond Room, BCH
- 9:50 am to 11 am – Keynote Speaker – “Monster” Mike Schultz – Blue Diamond Room, BCH
- 11:00 am to 11:30 am – Break and Networking – Blue Diamond Room, BCH
- **Board buses 11:30-11:45 am to go to Lincoln College of Technology for Lunch****
- 12:00 pm to 12:45 pm – Lunch, Partner Exhibits, Best CNC Projects – LCT – Diesel Room, Cafeteria
- 1:00 pm to 2:00 pm – General Meeting – LCT Diesel Room
- 2:00 pm – 3:00 pm – Breakouts – Session 1, Partner Exhibits – Classrooms, LCT Diesel Room
- 3:10 pm – 4:10 pm – Breakouts – Session 2, Partner Exhibits – Classrooms, LCT Diesel Room
- 4:15 pm – board buses back to Hotels
- 5:15 pm – 5:30 pm – Board buses for Billy Bob’s Texas (Dinner and fun!)
- 5:30 pm – 5:45 pm – Travel to Billy Bob’s (Spouses included)
- 6:00 pm – 11:00 pm – Texas-Style Dinner, Line Dancing & More!
- 11:00 pm – Board buses to return to Hotels

TUESDAY DAYTIME SPOUSE TOUR/ACTIVITY: A Day at the Stockyards – There will be a smaller Bus picking up from the Hotel 8:30-9 am. LCT Tour Guides will take you shopping, sights, etc. – arrive back at Hotels 2:30 pm. ***Spouses included in Billy Bob’s Event.**

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➤ Wednesday, July 12, 2017 – at Lincoln College of Technology

NOTE: AM Buses leave hotels at 7:15 am, 7:30 am, last bus at 7:45 am

- 7:30 am to 8:15 am – Lite Continental Breakfast, Visit Partners – LCT – Diesel Room, Cafeteria
- 8:30 am to 9:30 am – NIMS: Kickstart Apprenticeships – Montez King, NIMS – Cafeteria
- 9:40 am to 10:40 am – Breakouts – Session 3, Partner Exhibits – Classrooms, Diesel Room
- 10:50 am to 11:50 am – Breakouts – Session 4, Partner Exhibits – Classrooms, Diesel Room
- 12:00 pm to 1:00 pm – Lunch, Partner Exhibits, Best CNC Projects – LCT – Diesel Room, Cafeteria
- 1:15 pm to 3:00 pm – Manufacturing Tour – Maximum Industries, Inc. – Irving, Texas
- 3:15 pm to 4:30 pm – School Breakouts – High School, Community & Tech, Universities – Diesel Room, Rooms TBD
- 4:45 pm – 5:00 pm – Buses return to Hotels – FREE NIGHT (On Your Own) – Explore!

WEDNESDAY DAYTIME SPOUSE TOUR/ACTIVITY: We are planning a day of fun including checking out a little Texas culture! LCT Tour Guides will take spouses on a *Best Little Tour of Dallas* - a smaller bus will pick up from the Hotel parking lot at 9:30-9:45 am – will drop off at Train Station, take the train from Fort Worth to downtown Dallas – see historical spots including the Book Depository and where President Kennedy was shot and more! Train returns to the bus pickup, buses return to the hotels approximately 3-3:30 pm.

➤ Thursday, July 13, 2017 – at Lincoln College of Technology – Diesel Room

NOTE: NO BUSES – Drive from hotels to LCT

- 7:30 am to 8:45 am – Continental Breakfast – Vote for New HTEC 2017-2018 Council and 2019 HTEC Conference – Lincoln – Cafeteria
- 9:00 am to 11:00 am – Open Forum, Wrap-Up – Cafeteria
 - Announce new Council and 2019 HTEC Location
 - School Discussions from Tuesday – High School, Community & Tech, Universities Report
 - Announce winners of the Student/Class Project Competition
 - Closing Remarks, Door Prizes, Adjournment
- 11:30 am to 12:00 pm – Lunch – Box Lunches

See you at Danville in Virginia in 2018!

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Monday, July 10, 2017 – WORKSHOPS

Workshops offered 9am – 12 noon AND 1 pm – 4 pm (Except NIMS – see below)*

Autodesk – HSM CAM Bootcamp

Presenter: Iven May – Room #303-ALO

Guided class to get you started and running with HSM CAM. Participants follow along on their own seat of Autodesk HSM/CAM software. Use classroom computers or bring your own. All attendees receive; a FREE copy of Autodesk HSM/CAM software, FREE software for their students and classroom. Free learning resources include: Comprehensive Online Digital Manufacturing Curriculum, CAD Design-CAM Toolpaths-CNC Haas Mill setup, fixturing, communication-First article inspections, 6 projects motivational from simple to complex, appropriate for beginners in HS, Tech and Univ. All assets, Course overview, models, Power Points, assessments, models, videos step-by-step, assessment and more...

Carl Zeiss Industrial Metrology, LLC – Optical Inspection in Coordinate Metrology

Presenters: Stephanie McCartan, Lauren Van Beek – Room #142-AK and CNC Lab

Explore the basics of coordinate measuring technologies with the Zeiss O-Select optical CMM equipment and software. Learn about optical and tactile measuring techniques and experience measurement plan writing with Zeiss's CALYPSO software. This easy to use software platform with embedded GD&T symbolism allows educators and students to efficiently program their CMM, simulate the measurement plan, and interpret results. No CMM experience required to follow along. For more information on Zeiss please visit http://www.htecnetwork.org/partner_info.cfm?partner=3003.

CNC Software, Inc./Mastercam – Intro to Dynamic Milling: What your students will use in the workforce (AM ONLY) – Presenter: Dan Newby/TBD – Room #138-AK and CNC Lab

Learn how to program Dynamic Toolpaths and more importantly, why these toolpaths are preferred. From extended tool life to reduced cycle times, there is a reason these toolpaths are being used in industry. Find out why and start preparing your students.

CNC Software, Inc./Mastercam – Benefits of Incorporating Stock Models into your Curriculum (PM ONLY) – Presenter: Dan Newby – Room #138-AK/CNC Lab

Learn about the Mastercam Stock Model and how it can be used to speed up programming to create more accurate and efficient toolpaths. Also learn how to use stock models as training tools within your curriculum.

Cognisco Technologies – Using Virtual Machining to help teach, learn and protect your equipment:

NCSIMUL – Presenter: Stephen Perron – Room #WebTech-ALO

NCSIMULTM Machine is the most advanced, powerful, and yet the easiest to use CNC virtual machining simulation solution on the market. With NCSIMULTM, you can run the same G-Code that will run in your machine and check for syntax errors, machining errors, collisions and other mishaps in a snap. Come to this workshop to learn about all the features included in this innovative tool to help you teach and communicate G-code programming to your students, and how your students can practice more programming and machining, while improving safety and saving costs. During this workshop, you will be exposed to how simulation can help save time in proof reading code, putting together a new curriculum, building new lab projects, integrating 4 and 5 axes equipment in your school, and improving communication with your students with engaging technology that helps make complicated easy.

Immerse2Learn – I2L Product and Updates – Next Gen Control and more

Presenter: Dave Ott – Room #503-ALO

Immerse2learn will demonstrate new products, updates and unveil next generation online learning capabilities. Topics will include: Haas Next Generation Control (NCG), Inspection and ieLMS

****NIMS – ABC's of GD&T (AM ONLY)***

Presenter: Montez King – Room #302-ALO

NIMS offers training on fundamentals and application of geometric dimensioning and tolerancing as based on ASME Y14.5-1994 and ASME Y14.5-2009. The workshop will utilize NIMS credentialing prints to discuss GD&T applications and fundamental dimensioning rules.

Sandvik – LEAD: Helping to Solve Manufacturing's Critical Problem

Presenter: Joann Mitchell – Room #406-ALO

The Manufacturing Institute has published an implementable program to bring new talent into the manufacturing industry. The presentation and group work will discuss aspects of how to use some of these tools to engage new students, including female and non-traditional students, in manufacturing education programs to improve engagement and results.

Verisurf 3D Measurement Solutions – Metrology & Machine Shop Best Practices: Measurements of NIMS parts using Blueprints or CAD files – Presenter: Ray Elledge – Room: #508-ALO

The workshop begins with Inspection and measurement of a common part found in High School and College programs. Using the 6-axis CMM Arm, tolerances and dimensions will be determined using the Blueprint method. Using advanced methods next, the parts CAD model will be used to compare the finished part to the CAD model and reported in real time with additional analysis and reported in color highlighting in-tolerance and out-of-tolerance conditions. Additional features and ease of use will be discussed, along with the different types of CMMs and Laser scanners that Verisurf metrology software operates including the extensive list of importing and exporting attributes.

Tuesday, July 11, 2017 – BREAKOUTS #1 & #2

2 pm – 3 pm and 3:10 pm – 4:10 pm (2 sessions)

Manufacturing Skills Gap: Collaborative Earn & Learn Pathways to Careers in Manufacturing

Facilitator: David Gunn, Air Turbine Spindles – Room #302-ALO

American manufacturing is more productive than ever but lacks the home-grown skills to truly be competitive. Learn how providing earn-and-learn pathways into manufacturing can be the source of innovation, individual responsibility and inclusiveness that we require to compete. Creating University or College affiliated not-for-profit job shops teach students key technical and employability skills to obtain jobs in manufacturing, earning a living wage and fast-track into productive employees, increasing the value of technical post-secondary education and removing the burden of retraining employees. Volunteers from the local community teach and mentor students that are employed.

Autodesk HSM CAM Comprehensive Digital Manufacturing Online Course – FREE to Schools &

Education - Facilitator: Iven May, AutoDesk – Room #303-ALO

This session will layout the Digital Manufacturing Course developed by Devin Watson, in collaboration with Autodesk, taking beginners through the CAD-CAM-CNC-First Article Inspection process, creating the CAD model, CAM generating toolpaths, how to fixture and set it up on the Haas mill and First Article inspection. The concept is to take parts through the entire process. All the assets are included, Course Overview, Lesson Plans, PowerPoints, Video step-by-step, Assessments it is all there and on Immerse2Learn as a step-by-step online. This course with a Learning Content Management System. Motivational projects from simple to complex. Developed focusing on the new national CAM standards developed by NIMS, fitting Advanced HS through University.

Partners Providing “Fluid” Prosperity

Facilitator: Jeris Queen, Blaser Swisslube, Inc. – Room #142-AK

How training HTEC students in metal working fluids connect the dots to their future. HTEC partnerships with area private sector companies lead students to enhanced shop knowledge, networking, and career growth. Blaser Swisslube has proven mutual successes through their partnerships with local HTEC programs.

Teaching CNC Machining from Millenials to Baby Boomers

Facilitator: Sheila Weidinger, CamInstructor, Inc. – Room #522-ALO

Come join us for a hands-on session where you can experience a NEW Resource that shows students how to Setup & Operate Haas CNC Mills and CNC Lathes. Various mediums will be available to use, including online content and books. Let us show you the possibilities of its use within your own classroom.

Teaching Work Ethic in your Machining Program **1 Session – 2 Hours*****

Facilitator: Jim Weber, Capital High School – Helena, Montana – Room #523-ALO

Is student Work Ethic a problem in your machining program? Do you hear employers constantly complaining about a lack of work ethic among young employees? If so, come learn some effective teaching strategies that address these issues. Jim Weber, Welding and Machining teacher at Capital High School has developed a curriculum that can be embedded into your current machining program and the curriculum is free to HTEC members. In this workshop, Jim will explain the curriculum and teach you how to teach it in your programs.

Total Machinist Training

Facilitator: Chris Bien, Immersive Engineering Inc. – Room: #503-ALO

LearnCNC, hybrid learning with interactive NIMS aligned curriculum and simulation for the Haas controller - hands on experience prior to actual machine operation anywhere there is an internet connection. Advance through online training options starting with LearnCad, LearnCam, LearnAdvanced Mfg., and LearnInspection with Verisurf. Interactive, NIMS aligned, curriculum, exercises and true simulation provide virtual learning experiences prior to operating high tech software, technology and CNC machining centers.

How Students Benefit from CNC Programming Simulation Software

Facilitator: Courtney Miranda, CG Tech/Vericut – Room #305-ALO

Bringing manufacturing jobs back to the U.S. is a hot topic in today's headlines. In order to meet the demand for manufacturing jobs, Students should be taught the same software tools that employers will expect them to use. Many schools offer courses on CAM programming, but NC verification and simulation software is often overlooked. VERICUT CNC simulation software is used in all industries with all CAD/CAM/PLM systems to simulate NC code, whether programmed manually or post-processed from a CAM system. With students being exposed early on, they will have a competitive edge when entering the manufacturing job market. Teachers will find that Simulation software will also prove grading new NC programs can be a breeze, while also providing piece-of-mind by protecting CNC machines from student errors. This presentation will provide an overview on how simulation software is used in the industry, followed by a several case study examples highlighting how instructors have incorporated it into their curriculum.

It is the Gold Standard Capstone – Make your own Tabletop CNC Router

Facilitator: Mark McCollough and Student, Fresno City College – Room #506-ALO

Fresno City College CAM Program will motivate your students and have them design and built their own affordable table top CNC router machine. They will share their findings, designs and documents. We need more students who not only run CNC's but who can actually fix them, what better way to understand the principles then by building one from scratch. The class researched and design the tabletop router CNC mill, and then we used Haas mills to make the parts in a production setting. They also built an Arduino based controller, sharing free software for operation, setup, and programing for verifying toolpath strategy at home.

Tips, Tricks and What's New for Education!

Facilitator: HFO Dallas/Haas Automation, Inc. – Room CNC Lab-AK

Learn about the new Haas MiniMill-edu, Haas NG2 Next Generation Control, get tips and tricks from our Service & Applications experts as well as some trouble-shooting tips. Learn how to get the most out of Haas' TOD (Tips of the Day).

Industry 4.0: LIVE with Sandvik Coromant

Facilitator: Rob Page, William "B" Murray, Jeff Westhoff – Room #406-ALO

The presentation covers digital manufacturing - the tooling aspects and impact, as well as examining the applications of this Technology for industry and educators in live technical demonstrations.

Filling the Skills Gap through Apprenticeships – ToolingU-SME

Facilitators: Krista Maurer, Therese Schustrich, Nicole Sparks – Room #Webtech-ALO

Providing tools to machining programs to help industry outreach encouraging competency-based apprenticeship and increase enrollment in the classroom. With the widening skills gap, apprentices are a positive solution with measurable Return on Investment (ROI) results. Tooling U-SME believes that competency-based learning and development programs are essential for successfully learning specific job roles. The Apprenticeship Acceleration Framework can drastically reduce the time for an apprentice to reach the journey-level and is a flexible model. Come to our session and learn more about pairing on-the-job training with related training instruction and how it can supply a talent pipeline of qualified workers for your local industry partners.

Metrology & Machine Shop Best Practices: Measurement of NIMS parts using Blueprints or CAD Files with Verisurf – Facilitator: Ray Elledge, Verisurf – Room #508-ALO

Session begins with Inspection and measurement of a common part found in High School and College programs. Using the 6-axis CMM Arm, tolerances and dimensions will be determined using the Blueprint method. Using advanced methods next, the parts CAD model will be used to compare the finished part to the CAD model and reported in real time with additional analysis and reported in color highlighting in-tolerance and out-of-tolerance conditions. Additional features and ease of use will be discussed, along with the different types of CMMs and Laser scanners that Verisurf metrology software operates including the extensive list of importing and exporting attributes.

Wednesday, July 12, 2017 – BREAKOUTS #3 & #4

8:30 am – 9:30 am and 9:40 am – 10:40 am (2 sessions)

Geometric Dimensioning & Tolerancing (GD&T) in a Manufacturing Engineering Curriculum

Facilitator: *Trian M. Georgeou, Cal Poly State University – San Luis Obispo – Room WebTech-ALO*

Integrating Geometric Dimensioning and Tolerancing (GD&T) across a broad spectrum of the curriculum in a manufacturing engineering B.S. program. Lecture content, assignments, lab exercises, and projects have been developed across eight different courses in order to increase understanding of GD&T from various perspectives such as documentation, mechanical design, design for manufacture, fixture design, CNC machining, and inspection. Altogether, the content covers most of the key GD&T concepts and provides a consistent, coherent approach to graduating GD&T-savvy manufacturing and mechanical engineers ready to hit the ground running when they enter industry.

Intro to CMM Inspection with Zeiss Calypso Software

Facilitators: *Stephanie McCartan, Lauren Van Beek – Zeiss Metrology – Room #142 and CNC Lab-AK*

See how Lincoln College utilizes both shop floor and Metrology Lab equipment to inspect student projects down to the 1 μ m level. This breakout includes a demonstration of the Zeiss Duramax CMM and Calypso software. Zeiss technical experts will be onsite to answer questions on how to get Zeiss equipment into your facility.

Mastercam Project Fun: Design & Machine an Acoustic Amplifier

Facilitator: *Keith Butzgy - CNC Software Inc. – Room #138-AK*

Almost every student has a cell phone, see how to design and machine a personalized acoustic amplifier that is attractive and functional.

Maximize the Learning

Facilitator: *Aubrin Heinrichs, Gallatin College – Bozeman, Montana – Room #503-ALO*

This presentation is about how to have multiple independent setups and tooling for students from one class to another and from one student so that we can have multiple setups in process at the same time. With no risk to the students offsets.

HTEC 101 – Now that I have an HTEC Membership, what do I do with it?

Facilitator: *Hope Riska, HTEC/Haas Automation – Room #508-ALO*

Now that you are a member of HTEC, learn how to set up your own web page, update news about your school, how to navigate the HTECNetwork.org site and tips and tricks for promoting your programs through the HTEC site as well as social media - LinkedIn, Facebook, Twitter, etc.

Integrating Today's Generation into Tomorrow's "Virtually Technological World"

Facilitators: *Donnie Casey, Al Stimac – Machining Solutions – Room #303-ALO*

In this presentation we talk about Manufacturing and Manufacturing Education, discussing why manufacturing still matters and how it is changing, including the skills gap in the manufacturing industry and its projected increase, leading to an increase in the number of unfilled jobs in the industry. What changes need to be made in the manufacturing industry, specifically related to education? Learn how MTS's technologies and software can help facilitate the changes by explaining how Virtual Reality and Simulation based education can help the manufacturing industry, especially with the younger generations who are so technology-driven.

Four Components of a Successful Machining Program – Nash & Johnston Comm Colleges

Facilitators: *George Shook, Alex Barnhill (Nash), Brian Worley, Dwight Barnes (Johnston) – Rm #302-ALO*

We will discuss and present how Johnston and Nash Community College are proven to be successful in maintaining a full and viable program using four main components and their relationship to student engagement, utilizing (4) major components - Metalworkers Club, NIMS, SkillsUSA and HTEC/AIMS.

Taking Back American Manufacturing in YOUR Community: How to Boost Manufacturing in your Schools - Facilitator: Gene M. Keyes, Schoolcraft College – Room #305-ALO

Schoolcraft College, located in Southeastern Michigan, has a strong Advanced Manufacturing Program and has increased student enrollment in their curriculum by 525% over the last seven years. Gene Keyes, Schoolcraft College, Full-Time Manufacturing Professor, will discuss tips and strategies for attracting more students to your own program. Ideas on how to network with local business and communities to enhance your training focus will also be covered in this seminar. These guidelines will help you increase your student base and reputation within the manufacturing community.

Make Probe Technology Part of your Machinist Training Curriculum

Facilitator: Keith Smith, Shoreline Community College – Room #522-ALO

Most CNC production is proactive, and reactive. It is proactive in that the programs follow carefully crafted plans to ensure the best possible outcomes. During the production run, as variation is found, machinists react by adjusting the machine offsets or changing tools. In the past, machinists have depended on their ability to expect problems and react to problems but had no other way to control variation. In-Process Inspection (IPI) Today, manufacturers are integrating the use of adaptive machining. The most popular improvement is the use of probes that actively monitor tooling and inspect dimensions during the production process. Probes can check accuracy in real time, and then send data to the machine's controller. The machine's controller can make adjustments during the process based on information it receives. The ability of the machine to adapt to current conditions leads to less rework and downtime. Adaptive probing enables less active monitoring and even 'lights out' operation. In this workshop, we will discuss why probe technology should be a part of every machinist training program. There will also be a demonstration on how students can use fixture probing routines to measure part features and how to use CAD/CAM software to program complex inspection routines.

The Making of a CNC Operator

Facilitators: Carol Bruner, Javier Moreno – Tarrant County College Dist – Room #406-ALO

How do we meet the needs of our students to reach them in a way that they can understand and learn how to become employed as entry level CNC Operators in a 6-week or 9-week certification program. Who are the machine operators of tomorrow? Why are they here? What is their criminal background and their previous job experience? What methods do we use to train these individuals to learn machining basics (like math, print reading, precision measurements, tooling, speeds and feeds, offsets) in less than 2 months? What is our approach to reach these individuals? Some who have never held a screwdriver, some who suffer from PTSD or addictions; some who have just been released from prison the previous week? Proof that our method works: individual success stories.

Manufacturing in Engineering Education: A Unique Approach to Making a Difference through Manufacturing – Facilitator: Robert "Kurt" Hutchinson – Washington State University – Room #523-ALO

How to integrate class projects with all students - both male and female, by making an impact on a local and global level. The class designed and manufactured Fly Reels for both Wounded Warrior Project and Breast Cancer Survivors, with the end user in mind for the designs.

Ready for Industry 4.0

Facilitator: Justin Edin – ZOLLER, Inc. – Room #506-ALO

During our presentation, we'll show how clear tool identification, reliable process, and consistent tool data transfer are prerequisites for Smart Manufacturing. Tool data are organized throughout the entire lifecycle in the central ZOLLER tool database. Participants will see how ZOLLER networks the production process, from production planning to CAD/CAM, stock, and presetting and measuring. All tool data are available at any time and includes fully automatic communication with machine tools and CAM systems.