

# Interface

Journal of the WTEA

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Fall 2017

Educate Inspire Innovate

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## From the President's Desk

*By Steve Meyer, WTEA President*

Hello and welcome back for another school year. I hope you had a great summer and were able to relax and spend some well-deserved time with your family and friends. The fall is always a crazy but exciting time of year with all the back to school prep and activities. Before we know it, it will be Thanksgiving break!

I want to update you on some recent changes I have had in my professional life. This past spring I non-renewed my contract with the Brillion Schools. I had taught there 15 years and was ready for a change. The Brillion School District is a great place, but I was interested in pursuing some other opportunities. Recently I officially started my new position as Manager of STEM Education and Development at Fox Valley Technical College (FVTC). It is a new position at the college and will allow me to reach larger crowds of educators, business and industry representatives, parents, and students to promote the power of sTEM education. I am so excited and have experienced nothing but the utmost professionalism with the onboarding process here at FVTC. It is a great place with wonderful people and a tremendous culture. I look forward to working with many of you in this new role. My contact information is listed at the end of this message.



We have some really exciting things going on with the WTEA. Many members of the board met in Wisconsin Rapids this summer. The majority of the time was spent revamping some conference items and spending time planning for the 50th Conference coming up in 2019. We will be having some changes in the conference format that will bring more great opportunities for our membership, vendors, and special guests. These changes have been driven by the growth and extended opportunities for our association. I encourage all of you to begin preparing now to present at the conference, bring an item to the Project Showcase, recruit another member, write an article in the Interface, etc. All of these things will continue to help our association improve the opportunities for our membership and ultimately our students.

This edition of the Interface is again packed with great information. Be sure to check out our Feature Article from our friends and partners at CTECH Manufacturing in Weston, Wisconsin. CTECH uses state-of-the-art equipment along with the latest engineering software and manufacturing technologies to produce fully custom carts, toolboxes, etc. for the motorsports, military, industrial, and other industries. Other things to look for include:

- Board Member Summer Fun
- UW-Stout Fab Lab Retreat Overview
- Conference Information and Registration Dates
- CTE Summit Report
- Special Events Offered by WTEA Partners
- SkillsUSA Report
- STEM Academy information
- After the Classroom
- and many more articles, ads, and announcements

I hope you enjoy this edition of the Interface. Many individuals submitted excellent articles. Also, if you have not already done so, be sure to save the date for the annual conference on March 7-9, 2018 at the Chula Vista in the Dells. Have a great start to the school year and be sure to stay involved with the WTEA. Please let us know if we can help you in any way. Take care.

Steve Meyer, Manager

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# WTEA BOARD NEWS

## Summer 2017 WTEA Board Meeting Highlights

*By Matt Schultz, WTEA Secretary/Treasurer*

The following summary highlights the Summer 2017 WTEA Board of Directors meeting held July 19th in Wisconsin Rapids.

- Uncle Sam and Rosie the Riveter Cards “I want you to be a Technology and Engineering Teacher” available for your school. Contact Joe Cointea if interested.
- Stout Manufacturing Outreach Conference September 19th and 20th.
- WTEA and DPI are partnering to offer a training for tech ed teachers and counselors to see how they can work together to help align students with career goals through tech ed classes.
- Big plans for the WTEA’s 50th birthday are underway for the 2018-2019 conference. If you would like to be a part of the festivities please contact Joe Cointea.

## 2017 Annual Membership Meeting Highlights

*By Matt Schultz, WTEA Secretary/Treasurer*

The following summary highlights the Annual Membership meeting held March 2, 2017 during the Conference at Chula Vista Resort in Wisconsin Dells..

- New Appointments:
  - Past President - Jesse Domer
  - President Elect - Phil Bickelhaupt
  - Director at Large - Alan Mamerow
  - Secretary - Matt Schultz
- President’s Address - Steve Meyer: Promote and recruit future technology education instructors.
- Recognize each District Director with map.
- Pass the hat - Purchase raffle tickets.
- Request for Award Nominees via list serve.
- New award category this year - Inspire Award.
- Request for articles from membership, submit online.
- Feature Article update.

*For additional information about these meetings contact any member of the Board of Directors.  
Complete minutes are available from Matt Schultz at [mjschult@kUSD.edu](mailto:mjschult@kUSD.edu).*

### - Dates to Remember -

October 22 - 23	<b>SkillsUSA Fall Leadership Conference</b>	Wisconsin Dells, WI
October 25 - 27	<b>Career Pathways Network National Conference</b>	St. Louis, MO
November 17	<b>WTEA Awards Nomination Deadline</b>	
December 6 - 9	<b>ACTE National Conference</b>	Nashville, TN
December 9	<b>Nomination Deadline for WTEA Vice-President (2018-2020 Term)</b>	
March 1, 2018	<b>SkillsUSA Membership Deadline</b>	
March 8 - 9, 2018	<b>49th Annual WTEA Conference</b>	Wisconsin Dells, WI
March 21 - 23, 2018	<b>ATEA National Conference</b>	Gateway Technical College
April 24 - 25, 2018	<b>45th SkillsUSA State Conference</b>	Madison, WI
March 6 - 8, 2019	<b>Celebrating our 50th Annual WTEA Conference</b>	Wisconsin Dells, WI



## Train Your Replacement

By Mike Cattelino, Fox Valley Technical College

One of my favorite times of the year at school is the beginning of the school year. There is lots of energy as people come back from summer to get ready for the start of the semester and students begin their new academic path. New ideas getting infused into the curriculum, anticipation for new students to arrive, and the constant sound of the copier running in the work room near my office lift my spirits knowing that the year is about to start. When the students arrive it gets busy, but soon settles into a normal atmosphere. Personally, the new students arriving can be some of the best and most opportune moments in education.

Each semester I schedule time to visit the new groups of students, ideally on their first day in class. I also touch base with the returning students as time allows. The students I work mostly with are adult apprentices. They spend ten percent of their apprenticeship in class and ninety percent of it working with journeymen and masters in their trade through on-the-job training and practical applications of competencies related to the trade. Some of these apprentices haven't been in a classroom in many years, most haven't been to a college, so we talk a little bit about getting into the academic routine, meeting expectations, connecting with your instructor, homework, etc. I remind them that in a few years they will be journeymen in their trade and that there is a high likelihood they will be asked to mentor an apprentice in the future. The tables will turn so they need to pay attention. I also remind them that the instructors in their core classes are all journeymen, so they will get a feel for how that mentoring process unfolds throughout their time with us in class.

The mindset I try to get across at that moment is that each of them may have the chance or be asked to train their replacement in the future. To me that is a very unique and potentially very rewarding opportunity. I believe that mindset has relevance in a high school classroom as well. How differently would you teach on a daily basis if your focus was that you were teaching/training your placement? I mean that in a completely positive manner. Consider that one of your students will be taking over your classroom when you retire. How awesome would that be?



I have really enjoyed my time on the WTEA board. Looking into the future, I am ready to train my replacement on the board. Are you ready to move into the VP role, or any position on the board?

I would be very happy to work with anyone to make the transition smooth and allow the next leader to step forward and make the position their own. Trust me, it's not about me or the board, it's about the members and how to serve them. I plan to remain involved and engaged with the board in some capacity but feel as though it is time to allow the next leader to shine. My experiences with the individuals and the collective "power" of

the WTEA board have been irreplaceable. It has opened many doors for me that are too many to list and describe here. I would welcome the chance to hold the door open for future WTEA board members.

## CALL FOR PRESENTERS

*2018 Conference Theme:*

***"Educate, Inspire, Innovate"***

**49th Annual Spring Conference**

**March 7 - 9, 2018**

**Chula Vista Resort, Wisconsin Dells**

***Presenter form must be submitted***

***by November 30, 2017***

***by mail, fax, website submission or e-mail.***

Directly submit via online form at:

<http://www.wtea-wis.org/bapresenter.html>

E-mail: [johnston@mwt.net](mailto:johnston@mwt.net) • Phone: 608-689-3033

# NOMINATIONS

## Be Part of the WTEA Team

We are currently accepting nominations for the office of the WTEA Vice-President. This is your opportunity to serve your profession in a leadership position. The Board of Directors works together as a team to plan and coordinate professional development activities, give association awards and promote the advancement of our profession. The Board meets up to four times per year; meetings are held both face to face and electronically as appropriate. If you have questions regarding this position, please contact WTEA President, Steve Meyer, at [meyerst@fvtc.edu](mailto:meyerst@fvtc.edu).



### Vice President

(2 year term): Spring 2018 - Spring 2020

Nominations should be sent to WTEA President, Steve Meyer, [meyerst@fvtc.edu](mailto:meyerst@fvtc.edu)

Ballots will be mailed to members by approximately February 1st.

If candidates run unopposed, a unanimous ballot is cast by the Board and no paper ballots are mailed.

**Nominations will be accepted until December 9.**

## WTEA Awards Nominations

Each spring the WTEA recognizes Technology Educators, Industry, and Technology Education Programs that have demonstrated outstanding achievement at our annual awards banquet held at the WTEA Spring Conference.

The WTEA needs your help, as educators, to identify these worthy teachers, programs, and other professionals that deserve recognition. The WTEA is looking for educators that are going above and beyond in their classroom. The WTEA has a variety of award categories that cover teachers, programs, and examples of classroom excellence. Members are encouraged to visit the WTEA Awards page on the website. There you will find the criteria for each award. As a profession, we need to continue to recognize greatness in our profession. The WTEA Awards Banquet gives us that opportunity.

The awards committee will contact the nominee and request information regarding the nominee's curriculum, achievements, and contributions to Technology Education along with letters of endorsement. To nominate a teacher, program, or industry, contact Matthew Schultz, Secretary/Treasurer or Joe Ciontea, Executive Director and tell us who you wish to nominate, where to contact them, and why you feel they deserve recognition from our association. You can also make a nomination on the WTEA website by visiting the Awards Page: The awards ceremony will be March 7th at our 49th Annual Conference.

### Notes:

- Nominations must be received by November 17th to be considered for recognition the following spring.
- Technology Educators must be a member of the WTEA to be considered for award recognition. However, recipients of the "Special Recognition Award" do not need to be members.
- For a detailed description of the awards, please visit our website or contact any board member.

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Submit articles and photos to Interface Editor  
[doug@wtea-wis.org](mailto:doug@wtea-wis.org)



# DISTRICT NEWS

## District A

*Sylvia Tiala*



What a great summer! I took a bit of time this summer to reconnect to the Midwest and spend a bit of quality time with my husband. He and his brass quintet played for a wedding in Lutsen, Minnesota so my summer started off with a gondola ride and a great view of Lake Superior. I got to try my hand at

collecting agates. The Lockport Marketplace has a quaint restaurant in the back and you can find great pie at the Rustic Inn Café. July found me in Three Lakes, Wisconsin where I got to connect with 12 teachers in the Fab Lab. Their enthusiasm was infectious. I was introduced to Tamarak Song and his Teaching Drum Outdoor School. Tamarak is building a meditation path in the north woods. It is something to see. The end of the summer found me on the back of my husband's Honda motorcycle travelling to Prairie du Chien and touring Villa Louis. It is quite the landmark.

I am now looking forward to reconnecting with all of you this school year. I hope that you have a great start to the new school year. I look forward to seeing you online or in person at area meetings!

## District E

*Doug Kugler*



Greetings to all WTEA members!

I hope your summer was relaxing and restful. I have been on medical leave since April 27 through the end of the school year and spent the summer at home recovering. My restrictions were lifted in July (driving, boating, etc). I returned to school this fall.

I will try to connect with all of you in District E via email in September/October. There might be a lot of new faces so I will try to update the list ASAP. Please help me if I miss anyone and send me your information by emailing me at: [dkugler@waukesha.k12.wi.us](mailto:dkugler@waukesha.k12.wi.us) or call at 262-790-9128 (home), 262-271-6953 (cell). If you have changed jobs, please send me your new information and I will update it. Also, for all retired teachers in District E, if you want to be kept on the list, let me know.

## District B

*Brian Schiltz*



I am your District B Director. I have been teaching in the Tomahawk School District for 13 years and have been involved with WTEA for 18 years.

It is my hope that you had time to spend with friends and family during the past few months. My family and I spent many weeks this

summer camping at various state parks in Wisconsin. It is the wildness and diversification of nature and the abundance of camaraderie with friends and family that make this state and the citizens who reside here one of the greatest places to live and raise a family.

And speaking of camaraderie, don't forget to mark your calendar for the annual spring conference. This is a great way for you to connect with other professionals and see old friends and colleagues in our great vocation.

Also, if you have an event or an article you would like to see published in the Interface to share with associated subscribers, please send submissions to Doug MacKenzie ([doug@wtea-wis.org](mailto:doug@wtea-wis.org)).

I wish you all the best to the start of another school year. Godspeed!

## District F

*Eric Sutkay*



This summer was very eventful. Some of the memorable and favorite things that I did included fishing with fellow Tech teachers, Brewers games, and of course the "to do list" around the house. However, the most exciting had to be the birth of my son. On August 6th my wonderful wife and I wel-

comed our son, Chesney. We look forward to the exciting adventures to come. All that being said I am looking forward to the start of the school year. Being past the 10 year point now is exciting and I continue to meet new people in our field. I encourage everyone to get involved. I for one am looking forward to branching out in my district, specifically to meet in Beloit this fall. Hopefully this year will bring more opportunities to meet with other members in District F.

# WTEA EXECUTIVE DIRECTOR

## Milestones

By Joe Ciontea, Executive Director



Greetings from the WTEA Board of Directors. We hope you had a great summer filled with family fun and adventures. Our association is approaching a milestone. In March of 2019 we will be holding our 50th annual conference. To make that a memorable event, the Board of Directors held a

workshop in July to begin the planning. The Executive Committee had a follow-up meeting in August to form some committees and move forward with some projects on the drawing board. Before I go into some big changes for our upcoming spring conference next March, I want to share some association history.

- Our association's organizing meeting was held in 1927 at which time O. C. Schenke served as the founding president of the Wisconsin Industrial Arts Association.
- On Sept. 24, 1970 our association became incorporated and was renamed "Wisconsin Industrial Education Association, Inc."
- In October 1970, the WIEA held their first annual conference.
- In April 1983 the WIEA hosted the ITEA conference in Milwaukee.
- On October 26, 1983, the membership voted to change the name to "Wisconsin Technology Education Association, Inc." at the 14th annual conference.
- In October of 1996 the WTEA held its last fall conference (27th annual).
- In March of 1997 the WTEA held its first spring conference. This was the first time we held two state conferences in the same school year.

### Check your mailing label now!

Check the first line of the mailing label on the back cover of this magazine to see when your membership expires.

You may not receive the next important issue of the *Interface* unless your dues are paid beyond 2017.

- In 2009 the WTEA Foundation, Inc. was created to fund scholarships and other STEM education activities.
- In 2009, on Thursday evening of the conference, we held a celebration commemorating our 40th annual conference. That Thursday evening celebration has been held annually since then and is now called the WTEA President's Reception. It is an opportunity to raise funds for the WTEA Foundation while providing conference participants the opportunity to network in an informal setting.
- In April of 2015 the WTEA hosted the ITEEA International conference in Milwaukee and our state conference was held at the same location as a preconference event.

Starting with the 2018 conference we are making a few changes. The Technology & Engineering Awards Banquet will now be held on Wednesday evening as a preconference event. Please plan to arrive on Wednesday evening and help us recognize our award winners. The Thursday Trade Show will run until 30 minutes after the last sectional, giving you another chance to connect



with the vendors before they pack up. The President's Reception will be held from 4:30 – 7:00pm on Thursday. The WTEA annual membership meeting is being moved to Friday morning. It will be held immediately following the Early Riser Breakfast. We will still have two keynote speakers, and all the sectional time slots we've had in the past. We are also working on an expanded Project Showcase area for next spring.

Have a great fall semester. Watch the WTEA website for information and conference updates.

Help your students find their passion & fulfill their potential

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# SUBSCRIPTION



## Interface School Subscription

The WTEA school (building or district) subscription provides you and your local colleagues with an opportunity to keep informed about technology education in Wisconsin. The more local technology educators you sign up, the more you save. An individual subscription is \$30, but you can sign up 6 people for only \$125 - that's a savings of \$55 (see fee schedule listed below). Each additional person beyond the initial 6 is only \$10.

### How it works:

Complete the form below and list every technology educator in your building. If your department has teachers in more than one building, duplicate the form and provide us with the correct school address for each educator. That way separate buildings in the same school district can be combined to increase your savings. All names listed must be employees of the same school district. Tally the fees on the form and send it along with a check or school purchase order to the address on the bottom of the form. **To be eligible for all benefits of this special pricing, school subscriptions should be sent as soon as possible.**

### What you get:

Each person receives: a personal copy of the *Interface*, all association mailings and notices, invitations to attend regional technology education meetings and workshops, unlimited access to the WTEA website, discounted admission to the association's annual technology education conference, and eligibility to receive all association awards (educator of the year, program of the year, award of excellence, 25 year award). All mailings will be sent to the school address on the form. This school year subscription will expire the following fall. This form will be published in the *Interface* each fall; it is also available on the WTEA website.

Please type or print all information. Duplicate this form as necessary.

School District \_\_\_\_\_ School Name \_\_\_\_\_

School Address \_\_\_\_\_

School City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone ( \_\_\_\_\_ ) \_\_\_\_\_ School Fax \_\_\_\_\_

Local Technical College District (used for regional workshops and meeting invitations) \_\_\_\_\_

Local Tech. Ed. Contact (Dept. Chair, LVEC, etc.) \_\_\_\_\_

Email address of local Tech. Ed. contact \_\_\_\_\_

Name and email	# of years teaching	Fee
1 _____	_____	\$30
2 _____	_____	\$25
3 _____	_____	\$20
4 _____	_____	\$20
5 _____	_____	\$15

**Each additional person is \$15 each; names and school address may be attached on a separate sheet.**

*Please note: The Interface is published 3 times per year: fall, winter and spring.*

**Send this form with check or Purchase Order to: WTEA PO Box 1312 Fond du Lac, WI 54936-1312  
Fax (920) 922-0779**





# ELECTRIC GUITAR

ARE YOU LOOKING FOR AN INEXPENSIVE ACTIVITY THAT IS PROVEN TO ENGAGE STUDENTS? LOOK NO FURTHER! HAVE YOUR STUDENTS MAKE A ONE STRING ELECTRIC GUITAR. PERFECT FOR THE FOLLOWING:

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  - CNC ROUTER PROJECTS
  - WOODWORKING CLASS
  - ELECTRONICS CLASS
- INTEGRATED STEM PROJECTS

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## Technology Education Curriculum Repository at Curriki

Hey! Did you know that the WTEA has curriculum you can use as a resource? It can be found at: [http://www.wtea-wis.org/wordpress/?page\\_id=22](http://www.wtea-wis.org/wordpress/?page_id=22). Did you know that you can share curriculum ideas on Wisconsin's Technology and Engineering Education Listserv? Find instructions for joining at <https://dpi.wi.gov/te/listserv>.

But wait! There's More! UW-Stout is announcing the start of the Technology Education Curriculum Repository. We have created a group space on a curriculum wiki at Curriki.org. It is called the Technology Education Curriculum Repository (<http://www.curriki.org/groups/technology-education-curriculum-repository/>) and it is open for you, and the world, to contribute resources. This can include links to other web sites, links to your Google Docs, uploading lesson plans, and more. To access the site you first need to join the Curriki community by:

1. Logging in to Curriki at [www.curriki.org](http://www.curriki.org)
2. Click the "Sign Up" tab and fill in the information to become a Curriki member

To find the Repository:

1. Go to the link directly at: <http://www.curriki.org/groups/technology-education-curriculum-repository/>

OR

1. Log into Curriki at [www.curriki.org](http://www.curriki.org)
2. Find the tab with the magnifying glass. It defaults to "Resources". Choose the arrow and select "Groups"
3. In the search box type: Technology Education Curriculum Repository

When submitting curriculum material we ask that you make sure that you have the author's permission to use their work, acknowledge the source, and/or submit original material that is your own. We suggest you use a Creative Commons License (<https://creativecommons.org/licenses/>) with the submission of your own work where it is appropriate.

The Technology Education faculty at UW-Stout hopes you enjoy this resource and find it helpful. We look forward to seeing the links and curriculum you provide.

Please be sure to limit your postings to long-term, curriculum-related resources. Remember that you can only edit those items that you post.

Please contact Sylvia Tiala ([tialas@uwstout.edu](mailto:tialas@uwstout.edu)) if you have questions about the Technology Education Curriculum Repository.



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# SUMMER ACTIVITIES

## Steve Meyer, WTEA President

This summer was great. I had an opportunity to teach elementary school STEM in Beijing, China, coach lots of little league baseball, and get some much needed R&R. Good luck to all of you as you start out another school year. Remember to look to the WTEA for any support and needs that you may have.



## Bryan Albrecht, Mrktg Chr/Dir at Large

The favorite things I did over the summer are: attended Tony and Sara McConnell's wedding in Connecticut with Pete and Barb McConnell and visited the Wisconsin State Fair with family and friends.



I wish all my colleagues a wonderful start to the new school year. You inspire our future.

## Dave Stroud, Director at Large

This summer my family spent a lot of time camping. Actually, I wouldn't call it camping, it's more like "glamping." Other than that, I went to a wedding where Rascal Flatts performed the couple's first dance song. Even though I can't stand country music, it was still pretty awesome.



I hope everyone has a good start to the school year. Before you know it, it'll be summer again!

## Jon Larson, District D Director

My favorite things about this summer were being out on the water in our new-to-us boat, cruising, tubing, and fishing. Also spending the days with my 5yr old daughter and 1yr old son and doing fun summer stuff.



The best part about summer is recharging my batteries to get ready for a new school year. Remember, we can be the eye opening experience for students that have never held a tool or created something of their own design. Make it a great year for you and your students.

## Alan Mamerow, Director at Large

This summer I enjoyed spending time with family and friends, and spending time outside on various weekend trips. I'm greatly looking forward to the start of the school year. Continue to stay energized and passionate about what we have the opportunity to teach students every day, and have a great start to the school year!



## Phil Bickelhaupt, WTEA President-Elect

As the summertime rolls to an end, I was asked to share a few of the favorite things I did over the summer. I pretty much did what most Wisconsinites do in the summer . . . spend time with family, fish, go boating, water skiing, tubing, camping, hiking and of course relaxing while enjoying a Leinenkugel's or two. Perhaps the most memorable part of the summer was our camping trip to Wyalusing State Park. Great views, great boating on the Mississippi and great hiking along the bluffs. As we start the 2017-2018 school year I wish the best of luck to you and your students! Have a great year!



## Mike Cattellino, WTEA Vice-President

A couple days with the family at the Experimental Aircraft Association Fly-in in Oshkosh and an overnight get away to the Milwaukee Zoo and Discovery World were the most notable things this summer. Looking forward, the school year is shaping up to be engaging and evolving. I look forward to being involved with and hearing about success stories as they unfold. Make it another good one!



## Tom Martin, District H Director

My favorite thing was having the time this summer to bond with my sons. With five of them, three of which are now teenagers, my time left with them is now at a premium. While they display most of the typical characteristics (stay up all night, sleep most of the day, eat constantly) of adolescence, they are mine and I am grateful for that. The moments we shared this summer, whether that be in the form of labor on our farm or experiencing some of the mid-America's great engineering feats (The St. Louis Arch) we did it together. While my sons may not know it, we made memories this summer that will last a lifetime. For that time I am grateful to CESA to be able to take time to be with them before they and I embark on the great venture of the new school year.



To the Technology and Engineering Professionals who read this today, all the best to you for what you will do for and with my sons and all children you've been entrusted with. Here's to the best year yet.

**Check out the WTEA website**  
**wtea-wis.org**



# SUMMER WORKSHOPS

## Teach the Teacher Summer Institute

In late June, Hartford Technology & Engineering Education (TEE) teacher, Mr. Jason Kraus, led a class to teach other teachers from around the state about Residential Cabinetry Materials, Products, and Processes. Mr. Kraus offered teachers the various methodologies and processes involved with teaching while providing the teachers a hands-on learning experience. The opportunity allowed participants to leave with a product in order to get them started in their own classroom. Teachers from around the state of Wisconsin came to Hartford Union High School to learn for four full days in the wood shop and they toured a local residential cabinet shop to see what students might be exposed to when they pursue this career path beyond high school.

Teachers were able to earn 2-college credits for their experiences and work from UW-LaCrosse if they chose.



Look for additional information about the 2018 Teach the Teacher workshop at HUHS in the months to come.

## Automotive Summer Institute

The Foundation of the Wisconsin Automobile and Truck Dealers Association held their annual Automotive Training at Western Technical College in LaCrosse July 10th – 13th. Over forty automotive instructors from both secondary and post-secondary schools around Wisconsin attended the free training.

Training was provided by AC Delco, Pomp's Tire Service, VW of America, CDX, and Test Products Intl. Training also was provided by Carl Hader, Grafton High School, on Snap-on Simulation Boards, Jay Abitz, Freedom High School, on Teaching an Auto Body Unit, Andy Olson, WCTC, on Digital Storage Scopes, and Dan Klecker, Foundation of WATDA, on NATEF Accreditation.



The conference was opened by Bill Sepic, president of WATDA, who introduced Kara Nania as the new VP of The Foundation of WATDA. Kara is replacing Gary Beier who is retiring after 14 years with the Foundation.

Matthew Kirchner, of LAB Midwest, provided a fascinating and entertaining keynote presentation on the "Exponential Economy" and Chris Schneider, of Honda MOTORWERKS, provided a personal history on the evolution of Hybrids.

In addition to the training, a reception was held at the Dahl Auto Museum where a fun scavenger hunt was held among the numerous restored vehicles. Jeff Dowd received the "Extra Mile" award for his contributions to Automotive Education in the state.



## Relevant Cultural Connections and Student Learning

*By Sylvia Tiala, UW Stout*

I learned a lot this summer. It wasn't from textbooks or lectures but from colleagues and practitioners in education. My "schooling" started in late May as I listened to superintendent Ricky White talk about increasing student achievement at White Earth's Circle of Life Academy. How was he leading change in his district? By getting to know each of his students as individuals and connecting them with their culture. At the Circle of Life Academy, academics are combined with building longhouses, quillwork, canoe skills, and Ojibwe language and rituals. The results have been an increase in students' academic success and a greater connection to their cultural heritage.

UW-Stout's Career and Technical Education Summit allowed me to learn from Chris Neff (Racine School District) and Lori Suddick (Northeast Wisconsin Technical College). Chris spoke of Racine's Career Academy that connected business, industry, non-profits, and others into learning communities where students engaged in authentic learning experiences in smaller, more personalized learning experiences. Lori Suddick followed by explaining how the American population is changing from a predominantly white majority to a predominantly minority population. A majority of the American population will be made up of minorities by the year 2020. Lori helped me see how it will be necessary to design education environments to be more culturally responsive in the future. Both these examples reinforced the idea that educators need to make culturally relevant connections for students and we need to connect with students as individuals.

My final learning experience came during the Collaborative Curriculum for Engaged Learning and Community project funded by Grow North Regional Economic Development Corporation and the Wisconsin Economic Development Corporation. The idea for making a cribbage board on a CNC mill was discussed as a project. I saw little relevance for supporting student learning by cutting out a shape and drilling holes using a CNC mill beyond learning how to use a machine. I am not a cribbage player so there was not context or connection to be made. After some discussion, the teachers each recounted a meaningful memory that they related to cribbage boards. Some folks remembered playing cribbage with grandparents, parents and children. Another person reminisced about watching a cribbage board from a decommissioned submarine being ceremoniously transferred to a newly commissioned

submarine. This was followed by a discussion about how cribbage could be used to teach math and counting skills. Suddenly, the cribbage board "project" became a culturally relevant object connected to history, family heritage, and a curriculum reinforcement tool. This pattern of making objects that are "culturally" relevant, supporting the beliefs of a group/community, repeated itself throughout the week. The 3D-printed egg sparked a discussion about strategies for successfully dealing with hens going "broody" as they obsess over hatching eggs. The common 3D printed hinge was adapted and turned into a recipe card holder. Throughout the workshop the idea that learning needs to be personal, relevant, and connected to an individual's cultural context, repeated itself.

The idea of relevant cultural connections brings me back to all of you as educators. As I read *Interface* articles, or I meet with you at local meetings, or talk with you at the WTEA conference and see you in my travels across the state, I see a group of dedicated individuals who constantly strive to make learning relevant and culturally connected for their students. Each of you works in a different school district and each district has its distinct "culture." Despite the emphasis on state tests, standards, and other mandates, you strive to get to know your students, use local resources and culture to make learning meaningful, and provide authentic learning opportunities. From this we see a myriad of approaches to teaching about technology, engineering and problem solving. I believe this is one of the profession's strengths. We are able to create learning environments that look very different from one another, yet are relevant to our students' lives and connect them to their local community and culture.



**Educators who participated in the Collaborative Curriculum for Engaged Learning workshop**



# FAB LAB RETREAT

## Summer Fun at UW-Stout

*By Kenneth Welty, UW-Stout*

Summer is our time for play and fun after bringing closure to a grueling school year. It is also a time for reflection, experimentation, and planning for the upcoming school year. Twenty-nine teachers representing technology, science, art and elementary education brought their playful spirits and career dedication to UW-Stout's second "Fab Lab Retreat" that ran from Monday, July 17th through Friday, July 21st. The five-day immersion in design and digital fabrication was sponsored by the Discovery Center at UW-Stout with support from the Wisconsin Economic Development Corporation.

The retreat engaged participants in three fab lab projects that called for analysis, brainstorming, modeling, coding, fabricating, testing, presenting, and more. It also featured two tours of industries (i.e., Prototype Solutions, Phillips-Medisize) applying some of the design and digital fabrication principles being employed on campus. Lastly, the agenda included informative presentations from visiting industrial designers from Russia, Bob Werner from First Technologies, and Steve Meyer from the Brillion School District.

The first project challenged participants to design tools to help flight attendants open hundreds of soda cans while decreasing the effort required to perform the task, reducing the chances of repetitive stress injury, and minimizing beverage contamination. Their problem-solving process included reverse engineering three existing tools, defining their features, measuring their performance, and identifying opportunities for redesign. Some took the lessons learned during analysis to create original designs. Their work required a lot of modeling and testing to meet their design specifications.

The second project involved developing an illuminating graduation memento. The display piece featured two plaques – one featuring a school logo and the second presenting relevant text (e.g., Class of 2018). Each plaque was illuminated with an LED being controlled by an Arduino Nano that needed to be programmed to flash in an animated and celebratory manner with the push of a button. The

design and fabrication process involved graphic design, sizing resistors, soldering components, laser cutting and engraving acrylic plastic, and much more.

The last activity addressed the problem of tangled earbuds. Once again, solving this problem involved reverse engineering existing devices, identifying their merits and shortcomings, and ultimately, designing "a better earbud spool." Their work also included examining different kinds of earbuds, generating design specifications, brainstorming alternative designs, making mock-ups, testing designs, and fabricating prototypes with aesthetic appeal.

The retreat culminated with a "Shark Tank" style event that involved presenting and defending one of their creations while addressing questions from industry representatives. The participants left with working prototypes, instructional materials, teaching strategies, and new friends. They discovered that if you focus on simple problems, they can be subtly sophisticated and when you embrace something simple, it is very easy to uncover and target age-appropriate science, technology, engineering and math concepts and skills.



**March 21-23, 2018**  
In Kenosha, Wisconsin

**ATEA AMERICAN TECHNICAL EDUCATION ASSOCIATION**

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- Sustainable Energy Systems

**Keynote Presentation:** "The Dignity of Technical Education" featuring Nick Plachuk, CEO, Snap-on Incorporated.

See [www.ateaonline.org](http://www.ateaonline.org) for more information

The image includes a collage of photos showing people working on projects, a car, and a person using a Snap-on tool. The ATEA logo is also present.



## Day of Design™

### STEMconnector® Launches New Design Thinking Initiative

Gateway & Madison College have been working with a group called STEM Connector. This year STEM Connector has partnered with National Association of Manufacturers to launch the Day of Design. The date is October 6 and coincides with national manufacturing day.

In May, STEMconnector® launched its new Day of Design™ (DofD) initiative, recurring annually on National Manufacturing Day, October 6, 2017. Currently, more than 2.8 million students in all 50 states will participate in a design thinking challenge that will provide them with the skills they need to prepare for the workforce of tomorrow. By introducing millions of students to design thinking, this effort will encourage thousands of young men and women to pursue careers related to STEM and place them right in the center of the manufacturing revolution taking place in the U.S. and around the world.

“We are proud to salute a coordinated effort between STEMconnector, the Day of Design and the National Association of Manufacturers to enhance opportunities for students across the country,” Edie Fraser, CEO of STEMconnector® said, “We are so excited to be working with NAM to connect the manufacturers to schools and increase the students’ interest in advanced manufacturing. Design thinking is so important to fill the job gap and we are so excited to be a part of this change. We firmly believe that Day of Design™ will be the vehicle to impact change in the way we educate and lead to jobs.”

“Today’s manufacturing jobs require a highly-skilled workforce, and connecting manufacturers with students and teachers is essential for building the talent pipeline needed for the industry to continue to grow,” said NAM Chief of Staff Keith Smith. “We appreciate the educational resources STEMconnector is providing during MFG Day so more students can learn about and choose careers in manufacturing.”

This initiative was created by a unique group of leaders from education and business, including Stratasy, JASON Learning, The Clearing, Dassault Systèmes, The University of Iowa, Gateway Technical College, Olin College of Engineering, Base 11, Safe Harbor Consulting, Learning Blade, Jobs for America’s Graduates, National

Science Foundation, EC-Council and Next Step Universe. Dave Benoit, the Director of Global Education and Business Development at Stratasy, observed;

“Advanced Manufacturing jobs are some of the fastest growing with thousands of openings that are currently going unfilled due to a shortage in qualified candidates. Day of Design™ will prepare our future workforce by giving them the problem-solving skills needed to fill these jobs.”

Design thinking is a revolutionary problem solving methodology intended to generate innovative solutions for complex problems through empathizing, defining, ideating, prototyping, and testing. Companies utilizing this approach include industry leaders such as Ideo, Ford, Capital One, SAP, and Deloitte among others. The skills learned from design thinking will help close the talent gap needed to fill the thousands of pre-existing jobs in STEM fields. Participation from a wide range of sectors and constituents is highly desirable for success.

The critical student outreach component of the project is being led by JASON Learning, a non-profit, exploration-based program that reaches 3.5 million students globally. Dr. Eleanor Smalley, CEO and President of JASON Learning said, “We are so excited to work in collaboration with Day of Design™ and the opportunity to get students into facilities where they can see the latest and greatest innovations in American industry.”

Day of Design™ challenges will require students to use design thinking and follow a specific set of steps. They submit a video that explains their process of solving the problem as well as how they arrived at their solution. Upon completion of this challenge, participants will receive a virtual badge that can be used on social media platforms, which will also link to their video report on the challenge. How do I participate? Make a pledge, receive a packet and then go online to select a challenge or create my own, launch the effort on or before the Day of Design (participate in free training webinar offered in Aug/Sept), have students create videos explaining their solution and submit to DoD team. Then, join us in November to hear about the amazing results and impact of your efforts.



Plan now to attend the 49th WTEA Annual Conference

**“Educate, Inspire, Innovate”**

March 8 - 9, 2018

• Chula Vista Resort

• Wisconsin Dells

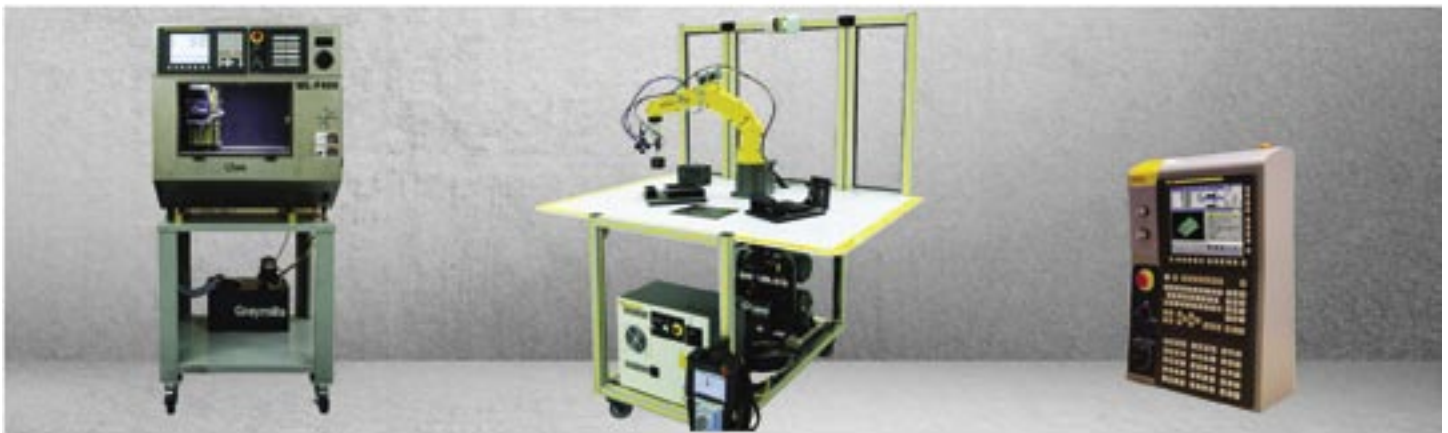
STEMconnector® is working in partnership with Credly to provide accreditation to participants of Day of Design™. Credly is an open source platform for people to earn and showcase their achievements and badges. As select badges are earned and issued by Credly, via [www.dayofdesign.com](http://www.dayofdesign.com), participants can easily share them on social media, Mozilla Backpack, a personal website, their Credly profile and more.

Day of Design™ utilizes social media to impact students, teachers and sponsors as they engage in our challenges. Continuous updates will be provided on Facebook: /DayofDesign11 Twitter: @Day\_of\_Design and Instagram: @day\_of\_design.

### About STEMconnector®

STEMconnector® is a consortium of companies, associations, societies, policy organizations, government entities, universities and academic institutions concerned with STEM education and the future of human capital and jobs. With seven unique initiatives and services, STEMconnector® is both a resource and a service, designed to link “all things STEM.” STEMconnector® focuses on the STEM workforce and jobs, with a particular emphasis on diversity and women. Our work spans the entire pipeline (Kindergarten to Jobs) and how STEM education experiences translate into careers. To learn more, visit <http://www.STEMconnector.org>.

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## FEATURE ARTICLE

### CTECH Manufacturing



#### The CTECH Story

CTECH Manufacturing in Weston, Wisconsin is a manufacturer of premium aluminum carts, cabinets, and drawers founded by Jim Greenheck 24 years ago.



As an avid drag racer, Jim saw a need for quality cabinets for his race team. Nothing was built to the quality he desired, so Jim sought after his own design and built the first engineered mobile cabinets. They were a lighter, stronger, higher quality unit than those available. Setting the standard for quality has earned us the reputation as being the most respected name in storage solutions today.



The best in-class features, such as the MotionLatch™ Drawer and Door systems, allow for hassle-free opening with the security of securely latching for transit, radius corners for a snag free finish, and a 10-business day lead time for orders of 10 tool drawer units or less. CTECH exclusives position us as the most sought-after aluminum storage solutions provider in the industry today.



With nearly 50 employees, we take pride in hiring self-driven problem solvers that are committed to servicing the needs of our customers. Utilizing some of the most advanced manufacturing techniques and machinery, CTECH has the capability to build custom storage solutions like no one else in the industry. The unique culture of teamwork, innovation, dedication, and creativity are what sets us apart.

CTECH stays engaged with end users and dealers to deliver new and innovative solutions every day. From major race teams, to global energy companies, our employees, technology, and engineering practices allow us to continue this trend of innovation.





## Educational Engagement

CTECH understands the importance of being engaged in educational programs, not only for efficient workspaces for teachers, but also in giving students the best environment in which to learn. We want students to be excited about the tools they have at their disposal, as they gain real-world experiences while in a classroom setting.

We have been able to collaborate with multiple educational facilities throughout the United States to accomplish one-of-a-kind learning environments. Through these programs, we have also been able to connect with young professionals going into different fields of engineering and manufacturing. This has contributed to new innovations and staff at CTECH.



Jon Winters, Career and Technical Education Coordinator at Wausau School District commented, "We are so fortunate to have CTECH cabinets in our Tech Ed labs at Wausau East and Wausau West High School. They allow us to better manage our technology education labs and the cabinets are extremely durable and look incredible! CTECH is a great partner in education because they not only build great cabinets but they have also hired several of our students!"



Some of the other educational programs that we have worked with are Duke University's Programming Lab, Marquette University's Mechanical Engineering Lab and Toolroom, North Central Technical College's Automotive Department, Diesel Program Shop, Electrical Mechanical Lab, Mill Room, Graphics Lab, Welding Lab, and Criminal Justice Shooting Range and Lockers, and Mid-State University's Diesel Lab Carts.

Through these partnerships we have also been able to support SAE race teams with essential equipment. We have helped the following teams be as efficient in the pits as they are on the track: Ohio State's Land Speed Sportsman Cart and University of Northern Texas Mean Green Racing's Worktop Cart.



CTECH is taking the best of all these programs and working with educational facilities to offer the best storage solutions with the most efficient use of the space. Not only are we committed to providing the necessary equipment for students and teachers to be successful, we are committed to the WTEA in an effort to advocate and help teachers promote the power of Technology and Engineering Education to schools, students, their parents, local communities, and across other industry sectors.

For more information on CTECH Manufacturing, visit our website at [www.ctechmanufacturing.com](http://www.ctechmanufacturing.com).





## 49th Annual Technology Education Conference & Trade Show

### Tentative Conference Overview

**Wednesday, March 7, 2018**

5:30 - 8:00 p.m. Pre-registration

6:45 - 9:00 p.m. Awards Banquet **(New Day)**

**Thursday, March 8, 2018**

7:30 a.m. – 3:00 p.m. Conference Registration  
 7:00 a.m. – 9:00 a.m. Project Showcase Setup  
 8:00 a.m. – 4:00 p.m. Trade Show  
 9:00 a.m. – 3:30 p.m. Project Showcase  
 8:55 a.m. – 9:05 a.m. General Welcome  
 9:05 a.m. – 10:00 a.m. 1st General Session  
 10:15 a.m. – 3:30 p.m. Concurrent Sessions  
 4:30 p.m. – 7:00 p.m. President's Reception  
**(New Time)**

**Friday, March 9, 2018**

7:30 a.m. – 11:30 a.m. Conference Registration  
 6:45 a.m. – 7:45 a.m. Early Riser Breakfast  
 7:45 a.m. – 8:30 a.m. WTEA Membership Meeting  
**(New Day & Time)**  
 8:45 a.m. – 12:15 p.m. Concurrent Sessions,  
 Vendor Demonstrations & Project Showcase  
 TBD – Hands-on workshops at Portage HS  
 12:30 p.m. – 2:00 p.m. General Session/Luncheon  
 2:15 p.m. – 3:30 p.m. WTEA Board Meeting



#### Thursday Keynote Speaker

**Guy Madison,**  
 Senior Manager  
 MICHELS Corporation.



#### Friday Keynote Speaker

**Brain D. Albrecht, Ed.D.,**  
 President &  
 Chief Executive Officer  
 Gateway Technical College

Session Topics Include: Laser Engraver Ideas, Fabricating Exoskeletons, Electric Vehicle Evolution, Plumbing and Electrical Techniques, Aerospace Technologies, Offsite Building Construction, K-12 Energy Education Program (KEEP), Robotics, Apprenticeships, Retirement Strategies, Innovation and Design, Automotive Technologies, Welding and Machining, Building High Mileage Vehicles, Project Showcase, SkillsUSA, 3d Printing Techniques, Middle School Roundtable, Manufacturing Project Ideas, New Teacher Boot Camp, and much more!



### Chula Vista Resort

4031 River Road, Wisconsin Dells

[www.chulavistaresort.com](http://www.chulavistaresort.com)

Room Reservations: 1-877-745-6998 Ask for WTEA Conference Rate



# 2018 Conference Highlights

March 7, 8 & 9

**Keynote Speakers - Thursday & Friday**

**Educational Sessions - Thursday & Friday**

**Project Showcase - Thursday & Friday**

**Trade Show - Thursday**

**WTEA Annual Membership Meeting - Friday**

**Awards Banquet - Wednesday Evening**

**President's Reception & Silent Auction - Thursday**

**Early-Riser Breakfast - Friday**

**Colleague Networking - All 3 Days**



To complete an electronic version of the WTEA membership/registration form, go to [www.tinyurl.com/WTEA-Conf](http://www.tinyurl.com/WTEA-Conf)

## WTEA Membership Application & 2018 Conference Registration Form

Membership year runs from September 1st through August 31st

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Home Phone (\_\_\_\_) \_\_\_\_\_ Local Tech College District \_\_\_\_\_ # years teaching \_\_\_\_\_

School Dist. \_\_\_\_\_ School Name \_\_\_\_\_

School Address \_\_\_\_\_

School City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ E-mail: \_\_\_\_\_

**Check the appropriate boxes below and total amount due.**

**Membership Fees:** [ ] 3 year membership - \$75.00 [ ] 1 year membership - \$30.00 \$ \_\_\_\_\_

**Spring Conference EARLY BIRD Registration** (Must be postmarked by December 22, 2017)

[ ] \$125 members [ ] \$155 non-members \$ \_\_\_\_\_

**Spring Conference Registration** (After December 22, 2017):

[ ] \$150 members [ ] \$180 non-members \$ \_\_\_\_\_

**WTEA Awards Banquet** (Wednesday, March 7, 2018) [ ] \$28 \$ \_\_\_\_\_

[ ] Bill my school district - purchase order is attached [ ] payment enclosed **Total \$** \_\_\_\_\_

Send completed form with payment or school purchase order to: **WTEA, P.O. Box 1312, Fond du Lac, WI 54936-1312**

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# SKILLSUSA

## 44th SkillsUSA State Conference

April 25 & 26, 2017



## SkillsUSA National Conference

*By Brent Kindred, SkillsUSA Wisconsin State Director*

The end of June was a great month for SkillsUSA Wisconsin with many members attending the 2017 National SkillsUSA Leadership Conference in Louisville, Kentucky! Wisconsin had a strong delegation of 133 people representing our state. We had 71 contestants from 32 schools; they competed in 36 contests at this year's Conference. Wisconsin won 4 gold and 4 silver medals and placed in the top 10 in 19 competitions. We are so proud of all competitors and how they did. They represented Wisconsin amazingly. Below are the winners and top ten placements.

- **Gold Medal:** Robotics Urban Search and Rescue - Middle School (Merrill Middle School, Oshkosh)
- **Gold Medal:** Information Service Technology - (Stevens Point Area Senior High School)
- **Gold Medal:** Power Equipment - (West Bend High School)
- **Silver Medal:** Team Engineering Challenge – Middle School - (Barneveld MS/ HS)
- **Silver Medal:** Screen Printing - (Slinger High School)

### Other Top Ten Placements

- Additive Manufacturing - (Little Chute)
- Related Technical Math - (Baldwin-Woodville High School)
- Robotics Urban Search and Rescue - (Elkhorn Area High School)
- Marine Service Technology - (McFarland High School)
- Web Design - (McFarland High School)
- Sheet Metal - (Oconto Falls High School)
- Electrical Construction Wiring - (Shawano High School)
- Community Service - (Washington Park High School)
- Automated Manufacturing Technology - (Watertown High School)
- Welding Sculpture - (Wautoma High School)
- Broadcast News Production - (West Bend High School)
- CNC Milling Specialist - (West Bend High School)
- Television (Video) Production - (West Bend High School)
- Robotics and Automation Technology - (The School of Career and Technical Education High School)



## SkillsUSA Fall Leadership Conference

The annual SkillsUSA Fall Leadership Conference is on October 22-23 at the Chula Vista Resort, Wisconsin Dells. This event is open to SkillsUSA Middle and High School members. The conference focuses on developing leadership, team building, and chapter management skills. The conference has training tracks for students and advisors that teach the skills needed to run a high quality chapter. Conference registration includes all meals, workshop and training materials, and a SkillsUSA Wisconsin Leadership T-shirt. Lodging at Chula Vista is specially priced for SkillsUSA attendees.

### Registration Deadlines

1. Registration opens September 11, 2017 at:  
[www.skillsusa-register.org/login.aspx](http://www.skillsusa-register.org/login.aspx)
2. Registration closes October 6, 2017.
3. Substitutions may take place through arrival at the conference.
4. Payment should be sent to:  
Wisconsin Association of SkillsUSA, Inc.  
P.O. Box 7841, Madison, WI 53707-7841  
For more information, please visit:  
[http://www.skillsusa-wi.org/wordpress/?page\\_id=321](http://www.skillsusa-wi.org/wordpress/?page_id=321).



March 7 - 9, 2018

Chula Vista Resort

Wisconsin Dells

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**The 49th WTEA Annual Conference**  
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## 2017 – 2018 SkillsUSA Calendar of Events

### Welding Challenge Events

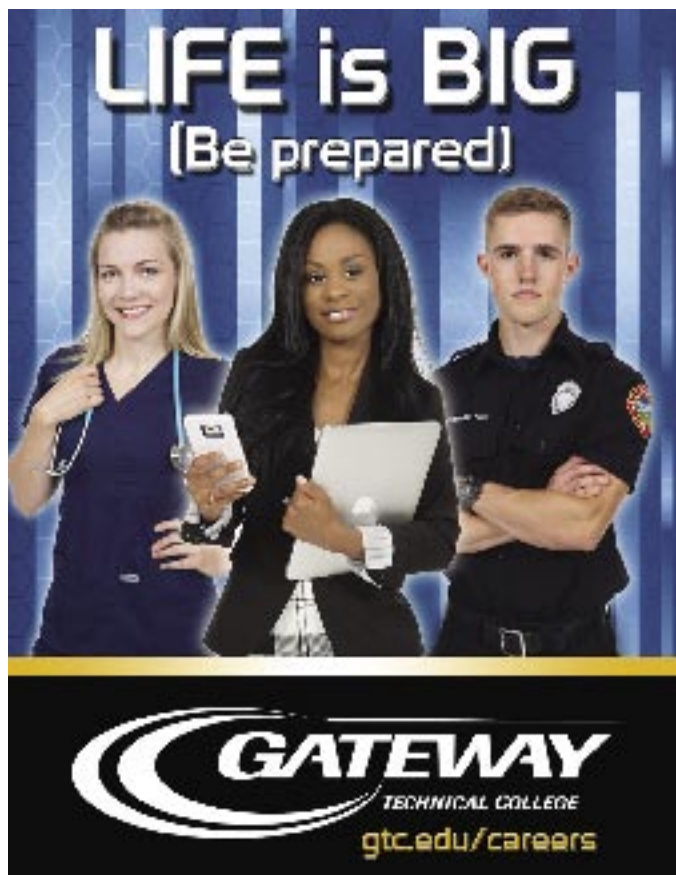
FVTC Welding Challenge	October 4
Appleton	
CVTC Welding Challenge	October 6
Eau Claire	
AWI Welding Challenge	October 14
Eagle River	
BTC Welding Challenge	October 21
Janesville	

### Fall Leadership Conference

October 22-23 Chula Vista Resort

#### Notice:

If you are not receiving  
the Technology Educators listserve postings,  
you can sign up by contacting  
Brent Kindred at: [brent.kindred@dpi.wi.gov](mailto:brent.kindred@dpi.wi.gov)



### District Competitions

District 1	December 6
WITC – Rice Lake Campus	
District 2	December 14
Wausau East	
District 3	December 7
Bondel High School	
District 4	December 4
Watertown High School	
District 5	December 7
Bradley Tech HS, Milwaukee	
District 6	December 6
Gale Ettrick Trempealeau (GET)	

### SkillsUSA Membership Deadline

March 1, 2018

### Regional Competitions

SWTC Regional Event	January 25–26, 2018
Southwest Technical College, Fennimore	
NTC Regional Event	February 2, 2018
Northcentral Technical College, Wausau	
GTC Regional Event	February 9, 2018
Gateway Technical College, Racine	
FVTC Regional Event	February 16, 2018
Fox Valley Technical College, Appleton	
UW-Stout Regional Event	February 22–23, 2018
UW – Stout, Menomonie	

### Team Works Competition

February 15-16, 2018 NARI Spring Home Show  
Milwaukee

### 45th Annual

#### State Leadership & Skills Conference

April 24–25, 2018 Alliant Energy Center  
Madison

### 54th Annual

#### National Leadership & Skills Conference

June 25–29, 2018 Louisville, Kentucky



## 2017-18 STEM Grant Announcement

By Christopher Strzok, STEM 101

The STEM Academy, aka STEM 101, a national non-profit, is offering best of class STEM curriculum and on-line professional development programming for public, private, and parochial schools in Wisconsin to promote academic and career success at no cost.

### STEM 101 COURSE OPTIONS:

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Biotechnology | Electronics | Energy | Engineering  
Design | Food Science | Information Technology  
Manufacturing | Medical | Sustainability | Transportation

#### Elementary School Foundation

K-Environmental

1-Dams

2-Airplanes

3-Race Cars

4-Cranes

5-Elevators

#### Middle School Foundation

STEM 101 Project Library

Discovering STEM

Designing with STEM

Investigating STEM Skills

#### High School Foundation

STEM 101 Project Library

Introduction to Engineering

Principles of Engineering

To learn more and receive a free trial, visit:

[www.STEM101.org](http://www.STEM101.org)

Questions regarding about this grant should be submitted via email, to Chris Strzok at [strzok@STEM101.org](mailto:strzok@STEM101.org).



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## Recap of the 2nd Annual UW-Stout CTE Summit

*By Phil Bickelhaupt, WTEA President-Elect*

This past June I had the opportunity to attend the 2nd Annual CTE Summit hosted by the University of Wisconsin Stout. To give you a quick overview, the CTE Summit consisted of several panelists speaking over two days on certain key topics, with small group networking and discussion in between each group of panelists. This was my first time attending the CTE Summit, so I was particularly excited to be there for several reasons. One reason in particular was the opportunity to get back on the UW-Stout campus to see the changes and updates that have been made since I graduated at the turn of the century - 2000 that is. I also was excited at the opportunity to meet and network with some of the best and brightest minds in the Career and Technology Education (CTE) field from across the state and nation. I was also proud to represent the WTEA at the summit and represent our views and perspectives as a CTE organization.

The summit kicked off with a summary of the strategic initiatives that were outcomes of the 2016 UW-Stout CTE Summit. Those initiatives were as follows:

1. Expand the pipeline of CTE teachers and leaders.
2. Increase the visibility of UW-Stout CTE programs and faculty.
3. Integrate Academic and Career Planning (ACP) initiative into curriculum.
4. Career and Technical Education Center for Teaching Enterprise.

Perhaps the biggest and most urgent challenge I believe facing CTE currently is directly related to number 1, expanding the CTE teacher pipeline. Overall, the teacher pipeline is shrinking, and even more so in CTE programs. School districts around the state are continuing to struggle to find qualified teachers to fill openings in CTE positions,

and to be quite frank, all teaching positions. This problem is not just a K-12 issue, it extends into the post secondary systems as well including the Wisconsin Technical College System (WTCS) and the University of Wisconsin System. This issue will continue to grow with the workforce continuing to shrink as the final baby boomers start to retire. Thus, the need to address the critical issue of CTE teacher shortage. These individuals teach the future workforce the skills they need to be successful citizens and employees.

After the welcome and recap of 2016, the focus of the CTE Summit (referred to as “the summit” from here forward) shifted to talking about the Macro Vision for CTE in Wisconsin. During each session the panelists were asked a question, and then responses followed. Just to note, all panelists were given the questions well ahead of the summit so they had time to prepare a thought provoking response. Three questions were asked over the span of the summit. The questions are listed below and the panelists that responded to each question. The panelists answered these questions in the context of their positions in the CTE field.

1. Looking out 10 years, how do we groom talent to meet the needs/current/emerging challenges in the workplace? Bryan Albrecht, President and CEO of Gateway Technical College; David Hay, Special Assistant to the Chancellor, New York City Department of Education; Jay Rojewski, Professor, Career and Technical Education, University of Georgia; Kyle Hartung, Jobs for the Future.
2. What is the future vision for CTE for Wisconsin? Sharon Wendt, Director of Career and Technical Education, Wisconsin Department of Public Instruction; Bob Meyer, Chancellor, University of Wisconsin-Stout; Jim Morgan, Director of New Ventures, MRA - The Management Association; Morna Foy, President, Wisconsin Technical College System.
3. What are the best practices in moving CTE forward? Lori Suddick, Vice President of Learning, Northeast Wisconsin Technical College; Chris Neff, Supervisor of Career and Technical Education, Racine Unified School District; Josh Gamer, Dean of Integrated Technology Division, Western Wisconsin Technical College; Russ Tronsen, Principal, Badger High School, Lake Geneva.

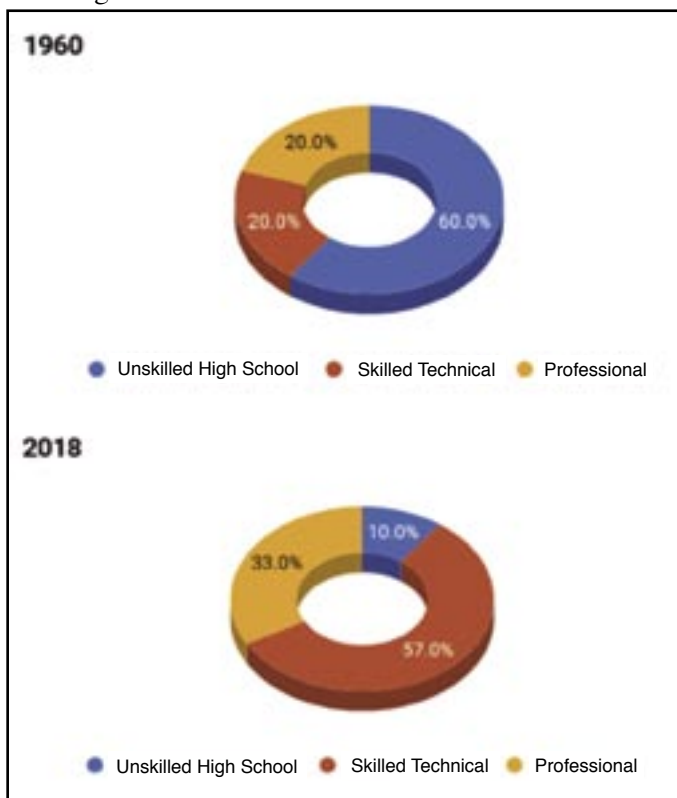


Left to right: Sarah Baird, Lori Suddick, Maxine Peterson.

To summarize the summit I am going to talk about my top three takeaways and the panelists comments that relate to those.

**Takeaway 1. The world is changing fast, really, really fast.** Several of the presenters included slides that revealed some very interesting information on how quickly the world is changing. Bryan Albrecht, President of Gateway Technical College, talked about Industry 1.0 to Industry 4.0. He talked about how the changes in industry are moving so fast, that we as educators, must move as quickly as possible to stay on top of these changes and adapt as necessary. Just to give you a sense of how quickly we are moving, Industry 1.0 to 3.0 took from 1784 to 1969 - almost 200 years, while Industry 3.0 to 4.0 took a mere 46 years. To find out more about Industry 4.0, do a quick Google search on "Industry 1.0 to Industry 4.0" and you will find quite a bit.

To add to this, another panelist talked about the changing American economy and where the jobs are going to be in 2018 (see graphic below). When I look at these two items, they stand out to me as a CTE educator. We need to change with the times.



**Takeaway 2. Changing expectations.** Along with the changes in industry and in the American economy comes changes in the educational landscape. One of those changes was presented by Morna Foy, President of

the Wisconsin Technical College System. Morna talked about the change in student expectations at the postsecondary level. Those changes included flexibility, accessibility, portability, and affordability. Students want to be able to have flexible options in their coursework. They want to be able to take classes anytime and anywhere, be it a physical environment or an online virtual environment. They want to be able to transfer coursework from one institution to another, seamlessly and without hassle. Last, but not least, they don't want to pay a fortune to do it! Morna talked about how these student expectations are shifting the way public institutions of higher ed, along with private institutions, are changing the educational landscape to meet these student expectations. As I see this, these are all good changes for our students, and may help in filling up the teacher pipeline a bit sooner.

**Takeaway 3. CTE Teacher Shortage.** While no single panelist discussed this in general, it was the overwhelming topic of discussion among several attendees and panelists. How do we produce more CTE teachers? We need teachers! What is UW-Stout doing to get more CTE teachers in the pipeline? These were just a few of the questions I heard as I wandered about talking and networking with various CTE leaders. Unfortunately, the answers to these questions are complex, not easy to solve, and they involve many individuals at many levels. Many answers were talked about, but you know as well as I know, accomplishing this is an arduous task that will take time.

In closing, there was much much more I could have shared from the two days of networking, however this article is long enough! So I leave you with one last question, "What are you doing to get more of your students to become Technology Education or CTE teachers?"



Left to right - Dr. Gindy Neidermyer, Danielle Stiebs, Tim Fandek, Dr. Dale Hanson, Dr. Shaun Dudek.



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## October is Manufacturing Month in Wisconsin

The N.E.W. Manufacturing Alliance will once again be holding events to highlight manufacturing and manufacturing careers and education in Wisconsin during the month of October. All Wisconsin Technology & Engineering teachers are invited to attend the following events:

### Get Real Math! Premiere

**Tuesday, October 3, 2017**

**Meyer Theatre in Green Bay**

The 28 Get Real Math videos showcase over 40 math skills used in the real world. The videos serve as a capstone after a skill is learned in school to be applied in a real world situation at a manufacturing company. Math skills featured are 3rd grade through high school. The lesson plans were created by math teachers. Get Real Math videos can be found at <http://newmfgalliance.org/educators-students/get-real-math-videos/>. The premiere is open to all technology & engineering teachers, math teachers, and school administrators.

### WTEA Pre-event

**4:45 - 5:15**

A gathering of the WTEA will be held at the Back Stage at the Meyer Theatre where we will discuss WTEA Conference updates. Refreshments provided. Please RSVP to Dave Stroud at [dstroud@ashwaubenonk12.org](mailto:dstroud@ashwaubenonk12.org) if you plan to attend the meeting so we can get an accurate count for refreshments.

All attendees to the WTEA Pre-event from 4:45-5:15 are eligible for a \$250 drawing for the attendee's tech ed department.

### Cocktail Reception

**5:15 - 6:30**

Connect with technology & engineering teachers, math teachers, administrators, and local industry representatives.

### Premiere of New Videos

**6:30 - 8:00**

Watch a premiere screening of new Get Real Math videos by KI, Marinette Marine, Necron Engineering & Manufacturing, and Rockline Industries. Pete Petoniak from Fox 11 will emcee.

During the Video Premiere from 6:30-8:00 there will be two \$500 cash drawings for tech ed departments, and a drawing for a Miller welding machine.

### Excellence in Manufacturing/K-12

#### Partnership Awards

**Wednesday, October 25, 2017**

**KI Convention Center in Green Bay**

The event will spotlight best practices of manufacturing and education collaborations throughout northeast Wisconsin as well as showcasing top talent from local manufacturing companies.

The awards dinner is one of the events the Alliance is sponsoring to highlight the state of Wisconsin proclaiming "October is Manufacturing Month." The event last year had over 380 attendees and raised over \$30,000 in college scholarships. Over the past ten years, the Alliance has awarded over \$150,000 in college scholarships.

Once again, M3 Insurance is sponsoring 20 free tickets to the Excellence Awards for tech ed teachers. Tech ed teachers interested in attending should contact Ann Franz at [ann.franz@nwtc.edu](mailto:ann.franz@nwtc.edu). She will need the teacher's name and school to register them for the event.

### Manufacturing First Expo & Conference

**Wednesday & Thursday, October, 25 & 26, 2017**

**KI Convention Center in Green Bay**

Manufacturing First is presented by First Business, along with the NEW Manufacturing Alliance and Insight Publications to provide Wisconsin Manufacturers hands-on opportunities to grow their businesses. It's designed to showcase industry advances, highlight successes, announce the latest developments, and provide premier networking opportunities. On Thursday morning there is an event for high school students at the Expo. High school students are asked to network with area companies about career opportunities and required skills to give students insight into what a career in manufacturing looks like. Students will also get to hear a talk from the conference's keynote speaker.

For more information on any of these events, or to register to attend, please contact Ann Franz [ann.franz@nwtc.edu](mailto:ann.franz@nwtc.edu) or visit the N.E.W. Manufacturing Alliance's website at <http://newmfgalliance.org/>





## An International Study Tour Experience

By Jon Larson, Little Chute High School

This past spring, I was given the opportunity to go on an International Study Tour with the UW-Oshkosh Executive MBA program. The trip was 10 days and included stops in Hong Kong and Nagasaki, Japan. During the trip, we were able to see many of the iconic and historical cultural sites, but the purpose of the trip was to meet with business and industry leaders to gain insight and knowledge of the business practices in their countries. We visited with leaders from American Express, United Airlines, United Overseas Bank, U.S. Consulate and FBI, 21st Century Fox, Mitsubishi Heavy Industries, Nagasaki Mayor's Office, and Nagasaki University. Each of the visits we had were very interesting and thought provoking. The discussions we had involved a lot of comparing and contrasting different practices in each country and in the great Asian market, as well as the cultural aspect of doing business in Asia. As a Tech Ed teacher, our visit to Mitsubishi Heavy Industries was, by far, my favorite visit. We spent most of our time at their on-site museum. I and some of the MBA

student engineers spent most of the time looking at the equipment and technology used in their plants.

We saw a turbine that exploded when it was tested, the oldest machine tool in Japan, an aerodynamic testing fixture, and all sorts of history of Mitsubishi. As a teacher, I know that I had a very different perspective than many of the others on the trip. I looked at how our students will one day be leading the way to compete in a global market. I have been very humbled by this experience and have been lucky to share this with my students. We have talked about what they are doing and how the U.S. can compete with and learn from foreign companies. By going on this trip and spending 10 days with a group of about 25 students, all working to get their MBA, I made many great connections. The students in this program will be the movers and shakers in businesses in the Fox Valley area. These connections have already turned into partnerships for our school and will benefit my students for years to come.

**Designed with you and your students in mind!**

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"Travel makes one modest. You see what a tiny place you occupy in the world."  
— Gustave Flaubert



## Do You Know NC3? You Should . . .

*By Tom Martin, School to Work Coordinator, CESA 3*

Disclaimer: This article is dedicated to my professionals in Southwest Wisconsin who are some of the most talented in the world.

This tale started when Duane Leaser, a recent WTEA Award winning professional from Lancaster, came back from the state WTEA conference two years ago and immediately sent me an email about PMI and his desire to have it offered here.

What is PMI you ask? PMI stands for Precision Measurement Instrument and was the first partnership Snap-on Corporation had as a part of NC3. More about NC3 in a moment. PMI was designed to meet the needs and expectations of industry in today's global marketplace. Starrett Corporation, Snap-on and NC3 combined their industrial experience and expertise to create a certification program and curriculum fortifying the certification which is specific to precision measurement instruments (PMI).

Precision measurement instruments form the basis of quality in manufacturing, repair and product/process assessment. The PMI Certification establishes a familiarity and understanding of the foundational instruments used in precision measurement. Those who receive the certification will prove they know how to use precision measurement tools to their full potential.

### **Course Content Includes:**

- Tape and Rule Measurement
- Side Caliper Measurement
- Gauge Measurement
- Angle Measurement
- Micrometer Measurement
- Dial Gauge Measurement

In essence, incumbent and emerging workers can earn an industry endorsed certification in three days. This means your students can come out of your programs ready

to utilize crucial measuring instruments in any number of industries. CTE Incentive Grant dollars are eligible for the completion of this certification as well.

So what about NC3?

What does this have to do with PMI? According to Roger Tadjewski, Executive Director of NC3, "The National Coalition of Certification Centers (NC3) was established to address the need for strong industry partnerships with educational institutions in order to develop, implement and sustain industry-driven and industry-recognized, portable certifications that have strong validation and assessment standards in the transportation, energy, and aviation sectors."

NC3 is a conglomerate of corporations, colleges and communities who came together to form industry standardized metrics like PMI that provide proof that workers, whether they be incumbent or emerging as with us, are career ready.

It's taken two years, but come the winter of 2017 - 18, Duane Leaser is boarding a plane to train and earn PMI certification that I will share with you in the spring of 2018 so that together we (professionals in Southwest Wisconsin) can proliferate our programs with embedded PMI certifications for all students.

That's just a start. If you haven't heard of NC3, you should. I'm going to be glad I did and I know you will be too.

PS, If you need further evidence, please contact Matt Schultz, our esteemed WTEA Secretary/Treasurer. He's earned two NC3 certifications which he'll have embedded in his Lakeview program yet this year.

ON WISCONSIN!



**Instructors participating in the PMI training course at the NC3's Train-the-Trainer event at Gateway Technical College.**

## Auer Steel Promotes HVAC Industry to Schools

*By Jon Hirsch, Director of Business Development, Auer Steel*

I'm excited to announce our outreach opportunity to technology education teachers throughout the state. In my role as the Director of Business Development for Auer Steel, I'm charged with working with the education community to help spread the word about the HVAC industry. I do outreach to technical colleges and secondary education classrooms. I serve on seven HVAC advisory boards for the purpose of helping create the curriculum and sharing stories about the tremendous career opportunities that this industry can offer.

Auer Steel is interested in doing high school and middle school visits to spread the word about education and career opportunities in the HVAC field. We work with hundreds of business owners throughout the states of Wisconsin and Minnesota. Our company has a fully outfitted job site trailer with HVAC equipment and controls installed in it for the purpose of doing school visits to do show and tell about the industry and the products we sell and install. I also share information about career paths and income potential that the industry can provide. We also have portable demonstration devices using Wi-Fi controls to show a typical HVAC system.



My goal is to visit classrooms to meet with students and teachers to tell our industry story and demonstrate our products and share information about career and education paths. A typical visit will involve bringing my equipment trailer and a local contractor representative. We will do a brief presentation combined with a video then open our trailer and do a hands-on demonstration of our products and answer questions. Our intention is to provide an informative, interactive and casual introduction to the HVAC industry.

For more information please contact:

Jon Hirsch  
Director of Business Development  
Auer Steel & Heating Supply Co.  
Cell (414) 349-0019  
[jon.hirsch@auersteel.com](mailto:jon.hirsch@auersteel.com)





## Wisconsin Industry, Manufacturing, Education and Police Department Come Together

*By Eric Sutkay, LakeView Technology Academy*

Two students in the Manufacturing and Engineering track at LakeView Technology Academy went above and beyond the curriculum to design and engineer a project for the good of the community. The task began in the 4th quarter of the 2016-17 school year and included the design, engineering and building of a breach door for the Village of Pleasant Prairie Police and Fire Departments as well as the Kenosha County Tactical Resource Team. The sophomore and junior at LakeView were picked to complete the task and work with the departments to build the frame to hold the door and take the beatings. The amazing part about this project is that 99% of the material was donated. All of the steel was donated by Grunau, doors donated by Kolbe Windows and Doors, powder coating on the frame donated by The Blast Shop in Kenosha, and finally the labor donated by the students at LakeView Technology Academy; all of this being done for the departments listed above.

The two students were chosen to complete the job as part of their Manufacturing and Engineering final project. Neither of them had welding experience but were excited to learn and try something new. The students drew up a plan, tested the design on Inventor and met with the police department to go over the specs with the lieutenant and Tactical Resource Team (TRT) officer. After securing the doors from Kolbe Windows and Doors, the students were able to begin cutting and mocking up their design. Again they met with the officer throughout the duration of the project to discuss things like the hinges, clamping system, door securing and counter weight. At times, the students needed to go back to the drawing board to re-engineer, or do some actual testing with the officer. They designed the door to be used with the ram or the halligan tool for different types of breaches.

On June 5th, the members of the TRT team, Pleasant Prairie Police Department and Pleasant Prairie Fire and Rescue unveiled and tested the door. The composite door donated by Kolbe Windows and Doors held up to multiple strikes from the ram as well as the use of the halligan. The students that designed the frame were honored by the departments as well as the companies that donated the materials. This project was a huge success and a strike-out for industry, manufacturers, students and the police department; all located in Wisconsin!





# LIFE AFTER THE CLASSROOM

## Do You Remember Vern Jordan?

My daily routine starts at 6:00 each morning with a daily walk with my wife, Judy, through downtown Trempealeau, along the BNSF tracks and the scenic Mississippi, past Lock & Dam #6 and back through town to home, a trek of three miles. One morning a week is spent having breakfast with friends or a cup of coffee at the gas station with the guys to catch up on the latest gossip & banter.



Retired since 2004 after 33 years teaching Industrial Arts and later Technology Education at Fort Atkinson High School, the time was right to change gears while I still felt effective in the classroom and enjoyed working with kids. In addition to my daily teaching duties I had the opportunity to be a head tennis coach a combined 33 years for the boys' & girls' teams and to work part time as an advanced welding instructor for 26 years at our Fort Atkinson MATC campus.

The transition from the classroom to retirement really started in 2000 when we purchased a lot in Trempealeau, Wisconsin for our future home. I had Judy make a list of what she wanted in our new home.

The first item she came up with was warm feet! So the planning began looking through many different styles of house plans and construction materials to be used. We decided to use the ICF (insulated concrete forms) for our lower & upper walls. The forms reminded us of hollowed out legos that interlocked together to form the wall that concrete and rebar would be used to complete the core. Approximately 100 yards of concrete were used for the house & garage walls. We were the general contractor for the house and built as much of it by ourselves hiring subcontractors to help with certain parts as needed. After eight months, we moved into the lower level and then worked over the next three years to finish the rest of the house. I had added enough room in the garage for a

separate 17' x 33' workshop to build kitchen cabinets, furniture or refinish various antique furniture pieces. Radiant floor heat was installed throughout the house as well in the garage and workshop which has worked out really well.

The importance of networking continued to be important for me in retirement as it did when I was teaching full time. I have had the opportunity to supervise student teachers in Technology Education for UW-Platteville, UW-Stout and Viterbo University. This is a great way to stay connected to the classroom and to visit outstanding programs and instructors around the state and to see future Technology Education teachers in action! We as retired and present classroom instructors need to encourage students to consider a teaching career in the Technology/Engineering field if it is to survive in future years.

Community involvement revolves around being secretary of our local Lions Club helping to plan our annual Catfish Days Celebration along with coordinating our Catfish Days Royalty float which participates in 25 parades during the year. I serve also as the chairperson of our Methodist Church council along with being the trustee treasurer.



As for leisure time and hobbies, I have developed a garden railroad in G scale that runs from inside the lower level of the house to an outside raised landscape area, which is held in place by a limestone retaining wall. The retaining wall stone came from a barn in the area that was to be torn down. After five months of using a pick to



dismantle the stone, hauling it back to the house and dry laying it, the walls were done. The stone was free with an estimate of 30 tons used. On three levels of the retained area I have developed my train layout with a tunnel, waterfall, bridges, a small pond and other types of plants or small trees to add character to the layout. When the train comes back into the house, the inside layout goes the depth of the house running at tabletop height. Another hobby is gardening and planting various types of replacement trees on the three empty lots we own adjacent to our home lot. Some of these plants and trees include apple, plum and blueberry bushes. Keeping the lots mowed and cleaned



up is an ongoing endeavor. The neighbors call it the park!

Leisure time activities include ice fishing in our lower lake region next to the

Mississippi in the winter, snowshoeing when the snow is deep enough or hiking the bluffs in Perrot State Park. We enjoy day trips around the area on the Harley or by car with friends. Some of our best trips have been by Amtrak to Arizona or to Seattle and on the Harley to the Black Hills, Tetons and Yellowstone.

I find it hard to believe that it has been 13 years since retiring from full time teaching. Mondays may start out with nothing on the calendar for the week and at times by evening the week is full of activities. At times I do miss the phase in my life being in the classroom working with kids, but the retirement phase is also nice to have flexibility in planning your days or week's activities or catching up on some recliner time!



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## Do You Want to Build A Car?

*By Joe Mink, Edgerton High School*

Like you, my summer was full of odd jobs, to-do lists and family activities. However some of the most fun I have professionally happens during summer training. During the week of July 10th-14th, ChallengeUSA, formally WEEVA, held its biennial “Advisor Build Week” at Edgerton High School. It was an amazing week of learning, networking, and fun organized to give new and experienced energy efficient vehicle advisors a place to build, share, and learn from one another.



During the week we are given the task to design, fabricate, and test an energy efficient vehicle. As our team worked together, the new advisors were guided through the process of how to assemble a team, fundraise, design, fabricate, assemble, acquire components and the ever exciting decipher rules. Starting a team is a challenging endeavor for every advisor. However, after a week of late nights and mathematical quandaries, each new advisor was able to leave confident and ready to build a vehicle for the season.



We also learned how each of the experienced advisors deliver content and organize build times. For example, Edgerton High School offers the program as a math and science



equivalent course where students have the ability to earn a half credit in each of the aforementioned core areas. Students are then allowed to retake the course in succession as an elective so that they may build on their learning and produce better engineered systems throughout their high school career. The content Edgerton High School uses was designed by many instructors throughout the state and is still a work in progress. All are welcome to use and improve the content as you see fit. Course content, along with other advisor materials, can be found on the ChallengeUSA website.



If you are on the fence about starting a team, I urge you to consider starting one. Your fellow instructors at ChallengeUSA are here to offer you support and guidance. But most of all, your students will be given an experience to apply their knowledge in a way that touches their heart and is shown through their hands-on work.

Spring events are in the works. We will be traveling to the following venues: Road America, AutoBahn in Illinois, FVTC Safety Center, and to UW-Stout at the Menomonie airport. To find out more, check out Challengewisconsin.org as we move to our new web site.





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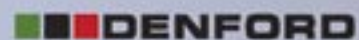
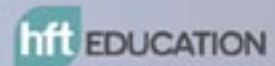
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