



MANUFACTURING TODAY WI

Celebrating Manufacturing and Education!



Mustang Manufacturing

Page 10 — The School District of Menomonie has recently developed a student-operated enterprise called Mustang Manufacturing. Mustang Manufacturing is an initiative that produces a variety of products including custom manufactured furniture, plaques, name plates, small construction projects, machined parts and a variety of other products.

Hustisford Tech Ed – Building a durable program with manufacturing

Page 14 — Relationships are one of the most important assets that I have to help make my program a reality with the support of these manufacturers, school administration, and School Board. My approach is to have a goal of providing the training necessary to meet the need of manufacturing in our area. I share this goal with manufacturers whenever I get a chance to talk with them.



Algoma Wolf Tech

Page 11 — Wolf Tech is recognized as a valuable asset for partners in subcontractor work, design, and programming. Currently, we employ students on a full and part-time basis depending on our workload. Students apply for available positions within Wolf Tech and develop into level 1, 2, or 3 machinists responsible for programming and production of contracts.



Cardinal Manufacturing

Page 8 — Learning is the main focus of the Cardinal Manufacturing program at the Eleva-Strum School District. Since 2007, Cardinal Manufacturing has been providing exceptional education opportunities for students to build professional, problem solving, and career skills.

See More on Page 4

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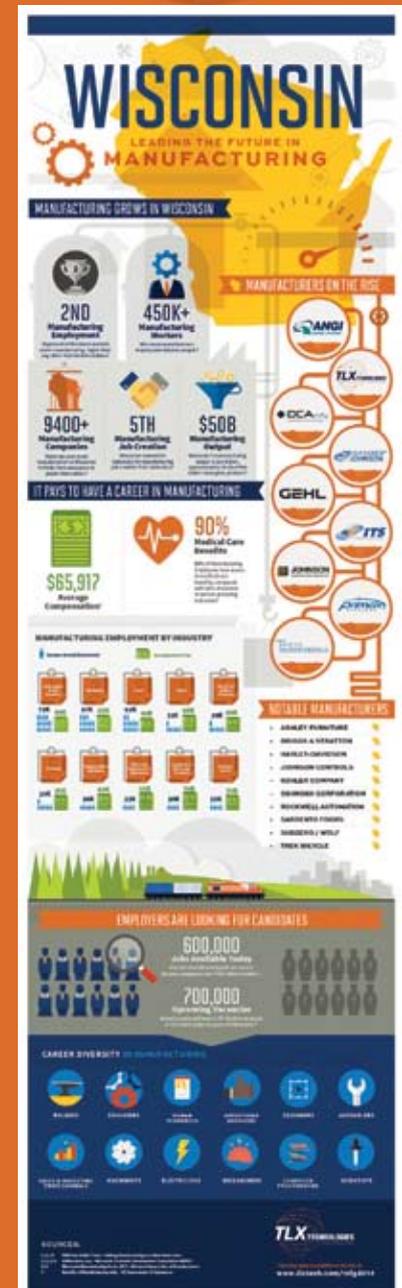
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Celebrating Manufacturing and Education!

Innovation That Excites the Imagination

Page 4 — Read the stories about two employees at TLX and their paths to a career in manufacturing. There are many doors of opportunity in manufacturing available to you here in Wisconsin. Everything from sales to purchasing, computer programmers, machinists, and designers, there is a wide diversity of career options in the manufacturing sector.



Riverside Machine & Engineering — Who We Are and What We Offer

Page 7 — We realize that the future of our companies rests in the hands of the next generation of machinists. So we partner with high schools and technical colleges to make sure students receive the education they need to understand our industry and the skills they need to operate sophisticated machinery.

Raider Products

Page 19 — Through the project analysis, bidding processes, and manufacturing learning is happening through every aspect of the manufacturing process. There are currently five students on the manufacturing end of the spectrum each with their own strengths in the different metal working fields and one student who runs the books and billing aspect of "Raider Products".



Technical Education Changes Boosting Skills in Schools

Page 6 — Two years ago, the Chetek-Weyerhaeuser High School Technology Education Department sought out a path that would give students another opportunity for post-secondary success. "Now there is a shortage of skilled workers. We need to re-educate students and parents that there is a demand for skilled labor and change the mentality of society" says Tech Ed instructor Bob Morehead.

Creating the Innovative Thinkers and Doers of the 21st Century

Page 15 — The Brillion Technology and Engineering Department is striving to create the Innovative Thinkers and Doers of the 21st Century. The program had a major shift in philosophy approximately 10 years ago. The philosophy now reflects the current and future needs of not only business and industry, but also the needs of the students. "We want the young people that go through our program and have the skills, knowledge and methods of thinking that will allow them to be successful in any future career or education opportunity."



Mosinee Manufacturing

Page 17 — Mosinee Manufacturing is a student-run business and a class at Mosinee High School. It is a business that does a variety of custom metal work for customers. Students take care of inventory, book keeping, business calls, part runs, design, production, and anything else that needs to be done to keep things running smoothly and customers happy. Everything is overseen by the instructor, Steve Kmosena, right in the Mosinee High School metals shop.

A really big show

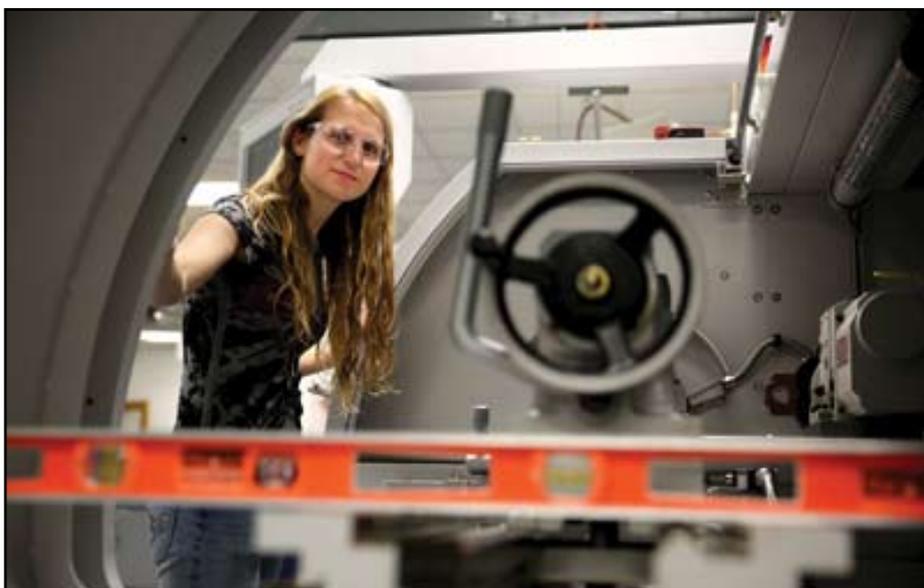
Page 5 — Courtney Schimek is joined by 14 other students and four instructors from University of Wisconsin-Stout on a trip to the International Manufacturing Technology Show in September in Chicago. The talk of the show, for example, was an electric car created on site with a 3D printer. The car was 3D-printed, assembled and driven away in a total of 44 hours.



Combining electrical, mechanical and pneumatic technology to meet the demands of paper making

Page 16 — Developing an atmosphere of teamwork and collaboration are long term objectives for BPM. Company leaders at the manufacturer cultivate an environment of teaching, learning and leading to incorporate technology and paper making science to support vision and objectives. The outcome is front-line employees with knowledge and expertise to integrate technology into finished paper products.

International Manufacturing Technology — A Really Big Show



McCormick Place, one of the largest exhibition halls in the country, was transformed into the manufacturing center of the world during the International Manufacturing Technology Show in September in Chicago.

Courtney Schimek viewed the 1.2 million square feet of display space as a giant classroom where she learned valuable lessons about the career she'll soon pursue.

Schimek, joined by 14 other students

and four instructors from University of Wisconsin-Stout, returned to campus with a new perspective on manufacturing.

"I know I will have to continue learning for the rest of my life to keep up with all of the improvements in technologies," she said. "There are way more tooling companies out there than I realized."

Schimek, a senior from Owatonna, Minn., is majoring in manufacturing engineering, as

are many of the other juniors and seniors who attended. Some also are majoring in engineering technology.

The 30th annual show drew more than 100,000 people from 112 countries. Schimek was amazed by the breadth and quality of the work being done by some of the 1,900 companies that exhibited.

The talk of the show, for example, was an electric car created on site with a 3D printer. The car was 3D-printed, assembled and driven away in a total of 44 hours.

Companies set up small factories to demonstrate their capabilities. Some exhibitor spaces were as large as the footprint of UW-Stout's block-long Fryklund Hall, home of the manufacturing engineering and engineering technology programs.

"There were parts machined so perfectly that the pieces fit together even with all of the surfaces being curved. I saw a horse (design) machined on one machine and a rose on another. The surfaces had no lines from the tool at all, which anyone who has done machining knows that is very difficult to do," Schimek said.

Schimek was impressed with the robotic machines. "I've wanted to be an engineer at a company that has (computer numerically controlled) machines for a while, but now I really want to work at a company that uses robots to help create parts also. Robots can do so many things and they will keep improving for years to come," she said.

"There were robots that had sensors in them and could sort objects by color and place the parts into containers," she said.

Job market strong

The show was too large for students and faculty to see in its entirety in several days.

"Students had a chance to see where manufacturing really is going and how much it affects our economy," said instructor Glenn Bushendorf, who attended.

Professors returned with good news for stu-

dents. "Most companies we talked to were short of manufacturing engineers," said instructor Tom Kaufmann, who also attended. "It's a good time to be in this field."

Professors visited with representatives of companies that provide equipment for UW-Stout's labs and learned about the latest industry technology, which students will be expected to use once they graduate.

Students paid their own way to attend; student admission to the show was free. They realized once they arrived that it was money well spent. "Their reaction to the show was jaw-dropping amazement," Kaufmann said.

Schimek is an assistant in the manufacturing engineering lab in Fryklund Hall.

Another student who attended, Ben Nickolay, a senior from Minnetonka, Minn., is an assistant in the additive manufacturing lab. He has designed his own 3D printer, an example of additive manufacturing.

As a result of going to the show "I know that without a doubt additive manufacturing will be in my future," Nickolay said. "The laser-based additive systems were shocking to see operating. DMG Mori had a system that used an additive process as well as a subtractive machining process, all in one machine."

Nickolay and Joshua Miller, a senior from New Richmond, talked with numerous companies. Several companies expressed interest in conducting training with UW-Stout students. Others expressed interest in interviewing students for jobs.

Miller called the show "eye-opening," especially the size of some of the large mills. "There are far more companies doing the same thing, or about the same thing, than I thought. This really opens the doors in the future for finding the best supplier for a project," Miller said.

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Technical Education Changes Boosting Skills in Schools



Rachel Westberg

Chetek-Weyerhaeuser Area School District

Two years ago, the Chetek-Weyerhaeuser High School Technology Education Department sought out a path that would give students another opportunity for post-secondary success. Almost one third of Chetek-Weyerhaeuser's graduating seniors had no plans to continue their education after high school. While the CWS technology education department offered a broad range of classes that gave students an introduction to several different areas, the curriculum lacked depth, rigor, and advanced skill development.

After hearing about a drastic need for welders, the technology education staff and administration started looking into welding certifications. What they found was the Schools Excelling through National Skills Education (SENSE) program through the American Welding Society, a comprehensive training guide for welding; upon successful completion of the program students earn an entry-level welder certificate from AWS.

As CWS staff made connections while researching welding options, the machine tool departments at Chippewa Valley and Wisconsin Indianhead Technical Colleges got wind of the changes at CWS. They had heard what was happening with welding and were interested in developing a machine tool program with Chetek-Weyerhaeuser High School.

A push for machinists became the next goal of the department, but required drastic changes to the curriculum. The department transformed its metal working program from two classes to ten. Metal Fabrication I offers students a basic introduction to the metal shop where they receive a sampling of welding, metal fabrication, turning, and milling. Students can go on to take Introduction to Welding, CAD, Occupational Welding I, Occupational Welding II, Occupational Welding III, and finally the capstone class Metal Fabrication II. Those interested in the machine tooling take Metal Fabrication I, CAD, Turning Fundamentals, Milling Fundamentals, and an online CNC class. The turning and milling classes are college-level courses and run during a two-hour block with an additional hour of open lab time. As an end result, students have the opportunity to receive transcribed college credits while taking classes at CWS.

In order to meet the demands of the new curriculum, the facility needed major upgrades. The school board and administration saw the value in the new program and granted funding. The welding and metal fabrication area was the first to be renovated. To acquire more space, part of the automotive area was repurposed. A new exhaust system now serves ten welding booths and one cutting station. Each booth has a worktable, a Miller Syncrowave for GTAW and SMAW, and a Millermatic 252

for GMAW. A shielding gas manifold system was installed to help eliminate the need for gas tanks at every station. A swing shear, band saw, and testing equipment were purchased and installed.

The machine tool program has been built from scratch. There are now eight Bridgeport mills, eight engine lathes, a surface grinder, surface plates and inspection equipment. Every machine station has a toolbox with all of the necessary equipment that the operator would need.

A new CNC milling center was also recently purchased to excel students' skills and match the concepts that are being used in industry. Since that purchase, the department has received donations and formed partnerships with several local, national, and international companies.

This type of program would not be possible without support from businesses, technical colleges, the school board, and administration. Tech Ed instructor Bob Morehead also sees a bit of change in the mentality toward technical education that has helped spur interest in advancing and changing the curriculum offered.

"There was a point in the past where it was believed every kid needed to go to a 4-year college, and those who worked blue collar jobs were looked down upon and considered second-class," notes Morehead. "Now

there is a shortage of skilled workers. We need to re-educate students and parents that there is a demand for skilled labor and change the mentality of society. The opportunities are out there. It is pushing schools to look at what we are teaching and what we should be teaching."

This change in mentality of which Morehead speaks can be seen in area manufacturers. Morehead has spoken with several local industry leaders who have expressed interest in seeing machining and welding programs back in schools. Perhaps the biggest example: Morehead noted that two local manufacturers, Parker Hannifin and Vincent Tool, have instituted new scholarship opportunities specifically for CWS technical education students. In addition to offering the scholarship, recipient would also work a part-time job at their facility while going to tech school. It's yet another indicator of the importance of adapting technical education curriculum to the changing industrial environment, and how it can affect students.

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Riverside Machine & Engineering — Who We Are and What We Offer

Riverside Machine & Engineering is located in Eau Claire, WI and has been providing precision machining and aluminum vacuum furnace brazing since 1996. Riverside Machine is a family owned company and the family also owns and operates Metal Craft in Elk River, MN.

Our partnerships are vast, including those with military, space, and defense leaders, as well as our solid relationships with the top manufacturers of original medical device equipment. Together, we can continue building the future.

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and technical colleges to make sure students receive the education they need to understand our industry and the skills they need to operate sophisticated machinery. Our relationships with the nation's top technical colleges with machine programs give us confidence that their graduates are ready for our industry. From high school mentorships, summer internships, and full time positions, we encourage all of our machinists to pursue continued education and growth opportunities.

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Cardinal Manufacturing



Learning is the main focus of the Cardinal Manufacturing program at the Eleva-Strum School District. Since 2007, Cardinal Manufacturing has been providing exceptional education opportunities for students to build professional, problem solving, and career skills. The program also was designed as a localized way to address the skills gap in advanced manufacturing and to engage our students in meaningful education. We are exposing students to the potential of manufacturing-

related careers, sharpening their technical skills, and instilling the soft skills and professionalism that employers crave.

Cardinal Manufacturing began in the Eleva-Strum School District during the 2007-2008 academic year when instructor, Craig Cegielski, approached the School Board about the potential of pursuing an in-school manufacturing business similar to one he started in his prior position in the school district of Antigo, WI.

The school board approved and since

that time Cardinal Manufacturing has gone from its infant stages to a company with significant annual sales and national notoriety. The growth of the program has attracted national and international attention and Cardinal Manufacturing has attended national tradeshows and hosted celebrity guests. On Tuesday, March 10, the Titan American Built TV Show which is on MAVTV filmed an episode here in WI which will feature our Cardinal Manufacturing program. The episode will air on Sunday, April 5th. Mr. Gilroy Titan's show premiered in October, and he travels the country looking for ways to promote American manufacturing. He also donated a 3-D printer to our program.

Cardinal Manufacturing has served hundreds of customers from private individuals to clients throughout the state of Wisconsin and other parts of the country. A number of students have gone directly

to skilled employment positions after high school, but most choose to go on to post-secondary education through technical college or the university system. Cardinal Manufacturing has also built strong relationships with a number of private companies and professional organizations which have been supportive through donations, advice, publicity opportunities, and projects.

In-school programs such as Cardinal Manufacturing serve as a grassroots economic development effort. Not only do these programs expose students to career opportunities in manufacturing and teach students soft skills for future employment, but they also work toward changing the attitudes of counsellors and parents to be more open to the idea of

Continued on Page 19



November 19, 2014, Cardinal Manufacturing hosted an open house featuring Tom Wopat of "Dukes of Hazzard" fame. Tom met fans of all ages, autographed memorabilia, and donated half of his own proceeds to the Cardinal Manufacturing fundraising efforts. Additional raffles for numerous prizes helped raise money for tooling and equipment. Over 1,000 reportedly attended to support this tremendous project that prepares metalworking students for great careers in manufacturing.



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Mustang Manufacturing

School District of the Menomonie Area



Across Wisconsin, educators continually strive to offer realistic learning experiences for their student populations in an effort to address our country's ever increasing skill's gap. There is a universal agreement that students must encompass a broad skill-set in order to be successful in today's ever-changing workforce including both technical skills and the often hard to teach soft-skills. Teaching and learning can no longer exist in "silos" but must encompass a collaborative atmosphere filled with

furniture, plaques, name plates, small construction projects, machined parts and a variety of other products. Products are manufactured according to customer requests. Students utilize the school metal's lab, woodworking lab and FABLab, equipped with both traditional manual machinery and CNC machinery, to produce the needed orders. Currently, participants are senior level students concentrating in the business/marketing or technology programs enrolled in the school's capstone senior internship

project-based learning and a blend of rich curriculum. For students to learn this often difficult to teach subject matter, many schools have added student-operated enterprises to their course offerings. Schools who have done this, have found that they are naturally equipped for these programs as they typically have well-rounded technology education programs coupled with strong business/marketing programs staffed with creative teachers and supportive administration teams. With these key components, student-operated enterprises are a viable option for our schools.

Menomonie has recently developed a student-operated enterprise called Mustang Manufacturing. Mustang Manufacturing is an initiative that produces a variety of products including custom manufactured



(work-based learning) program. The business and marketing students are responsible for all of the billing, payroll, web-page design and marketing components; whereas, the technology students handle the manufacturing components of the business including material inventory, machine maintenance, and all production requirements. All of these students work closely with the business/marketing teachers and technology teachers who are responsible for the supervision of the program. Students participating in the program are paid through "piece work" with 75% of the profits going to the students and 25% of the profits going towards the upkeep of equipment and business expansion. A typical work day for the student employees is 12:45PM to 3:45PM Monday through Friday with the option for extra hours if so desired or needed.

The development and operation of the enterprise has been a total school partnership. Initial conversation of the idea started with the business and marketing department, the technology education department, high school administrators and the director of curriculum. Stakeholders agreed that this would be an excellent opportunity for our students and were excited to make it a reality. With the "seed planted", the idea was brought to the district business manager and human resource director. Everyone was in total support of the idea and agreed that this would be an excellent opportunity for our kids. They then worked many hours to make the enterprise a reality. We are lucky at Menomonie to have such a great administrative team, who is student focused! Our school's curriculum director approved the program. The school's business director developed an account for the enterprise for

deposits and another account to distribute payroll. The human resource director hired the students as district employees. Our high school administration approved the course offering and was instrumental in offering the course as part of the school day during our school's senior internship program. From that point the program was made a reality. We are currently in our second year of Mustang Manufacturing and are happy with the development of the program and excited of its future.

In closing, we feel that Mustang Manufacturing follows our district's mission to prepare students to become lifelong learners, caring individuals and responsible citizens; adding to Menomonie's already rich educational system. Students participating in this program develop skills (soft skills) which are much more difficult to teach than learning to operate equipment or deliver a finished product. These skills include the ability to learn, reason, prioritize, understand time management, communication, work ethic, honesty, problem solving, teamwork, creativity and a host of other skills. We feel that transferrable skills such as these will last our students a lifetime equipping them for success in whatever career they choose, as we are often educating our students for a career that may still not exist.



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Algoma Wolf Tech

Nick Cochart
 Superintendent/7-12 Principal
 Algoma School District

Algoma Wolf Tech (2013) and Lakeview Regional Technical Academy (2014) both call Algoma High School home. Wolf Tech is a student run business that specializes in CNC machining with the help of local businesses Precision Machine, Olson Fabrication, D&S Machine, and CTI Hospitality. Earning ISO 9001 certification in January 2015, Wolf Tech is recognized as a valuable asset for partners in subcontractor work, design, and programming. Currently, we employ students on a full and part-time basis depending on our workload. Students apply for available positions within Wolf Tech and develop into level 1, 2, or 3 machinists responsible for programming and production of contracts. Wolf Tech operates after school hours and throughout the summer. Proceeds are managed by the students and contribute to the sustainability of the business.

Lakeview Regional Technical Academy (LRTA) is a collaborative effort between Algoma High School and Northeast Wisconsin Technical College (NWTC). Students participating in the academy program have the opportunity to earn in excess of 20 dual credits as a direct conduit to a number of career pathways. Stu-

dents also have the option in taking NIMS (National Institute of Metal Working Skills) credentialing courses in various areas. The credentials are nationally recognized and sought after in the machine tool industry. Algoma High School has expanded our dual credit offerings in a commitment to providing the best opportunities for our students. In four years, we have gone from one dual credit class to over 20 now with more in the process of scheduling. Community interest in our programs is overwhelming with a consistent culture of support. In addition, our families have benefited from the access to post-secondary training while in high school which drastically reduces the financial impact of training after high school.

Wolf Tech and LRTA have had the privilege of building exceptional partnerships with local companies. These relationships have blossomed into career opportunities for our graduates with the benefit of paid post-secondary training in many cases. Both of these initiatives have proven to produce the well-rounded highly skilled employees necessary to drive further manufacturing growth. To date, 100% of our graduates have gained employment prior to graduation from high school. In many cases, those students were also able to continue with advanced post-secondary training with the



support and guidance of our local partners. In addition, we have also been fortunate to have been awarded Department of Workforce Development Fast Forward grants for our work in providing highly skilled employees that address the skills gap prevalent in Northeast Wisconsin Manufacturing.

As a testament to the success of both Wolf Tech and LRTA, the Algoma School District just completed a 30,000 sq. foot expansion of the high school building which includes a new 10,000 sq. foot manufacturing lab equipped with the latest CNC machines (HAAS TM2P, HAAS VF-3, and HAAS ST-20) along with the complementary manufacturing infrastructure to complete projects big or small. Our recent open house generated interest from over 1,200 attendees who were amazed at the transformation of technical education delivery in our district. For a small rural school district our investment in innovative practices is very consistent and deliberate. We cannot ask students to have the skills necessary for a successful career without

providing the equipment, space, resources, and highly skilled instructors to develop that talent.

Wolf Tech and LRTA are at the forefront of producing graduates with industry recognized credentials and the skills necessary to likely gain career employment prior to the completion of the program. Our goal of providing the workforce for the future has exceeded all expectations and drives us to innovate even further in providing the best possible educational experience for our students. If you wish to visit Wolf Tech or the Lakeview Regional Technical Academy, please don't hesitate to contact us.

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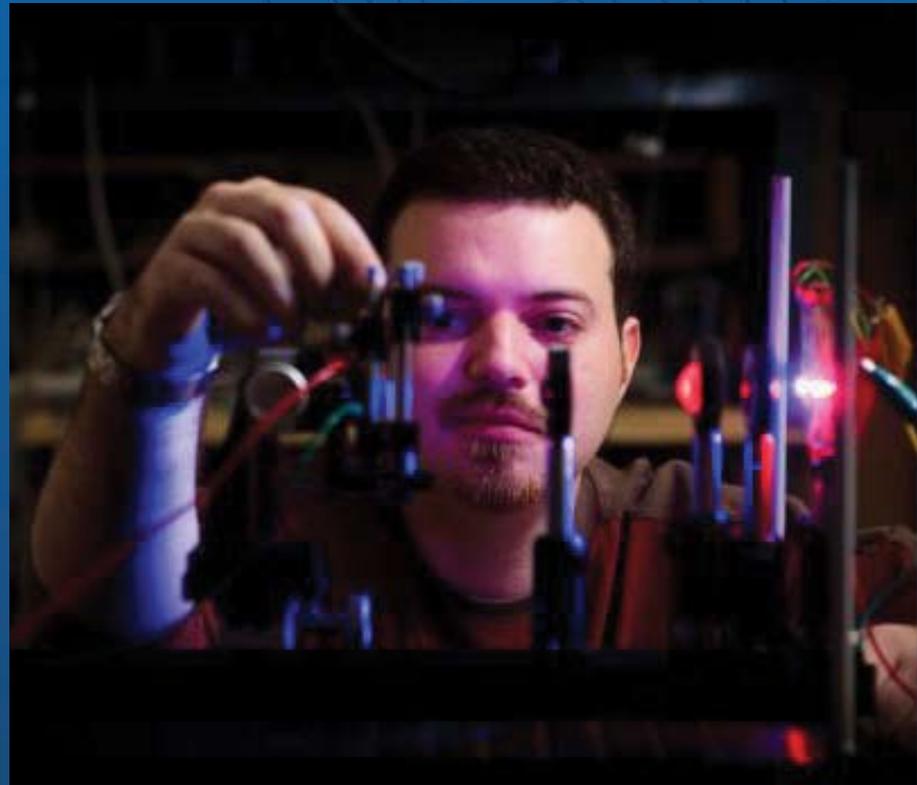
You can earn an engineering degree from
UW-PLATTEVILLE



WHEREVER YOU ARE

**WHAT IS UW-PLATTEVILLE
COLLABORATIVE ENGINEERING?**

UW-Platteville in partnership with UW Colleges provides the opportunity to pursue an ABET-accredited bachelor's degree in electrical or mechanical engineering from UW-Platteville.

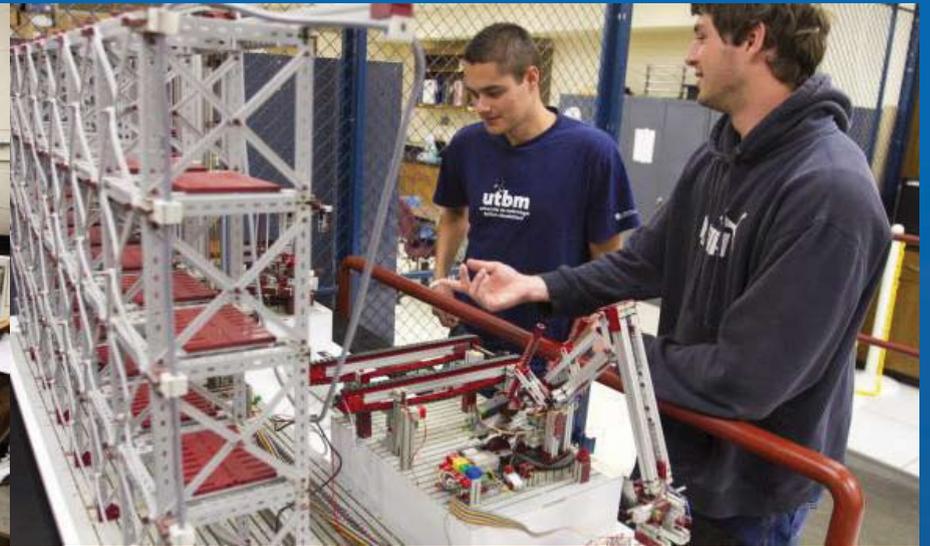
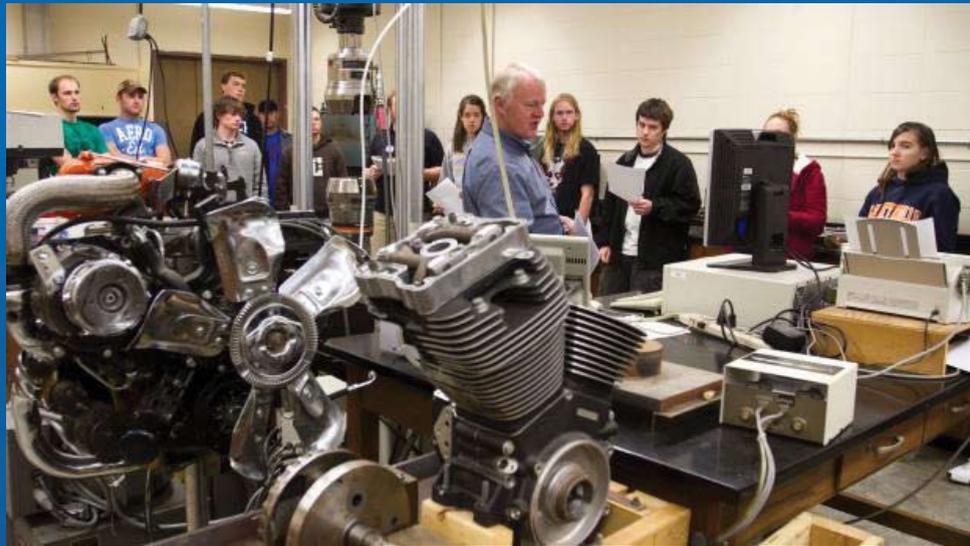


HOW DOES IT WORK?

Students complete the associate degree requirements and pre-engineering courses at one of the 13 UW Colleges campuses or through UW Colleges Online.

While working towards an Associate of Arts or Science degree, students begin taking the UW-Platteville engineering courses by distance technology or in a face-to-face classroom depending on the student's location.

The UW-Platteville engineering courses offered through distance technology are recorded during live classes and then made available via UW-Platteville's online course management system, Desire2Learn.



HOW IS UW-PLATTEVILLE ENGINEERING UNIQUE?

- Hands-on, lab-heavy experiences
- Theory-based curricula
- No teaching assistants—all courses are taught by engineering professors
- UW-Platteville graduates are prepared to perform engineering functions upon hire

UW-Platteville engineering courses are taught face to face on the following UW Colleges campuses:

- UW-Fox Valley
- UW-Rock County
- UW-Washington County



WOULD YOU LIKE MORE INFORMATION?

Visit: www.uwplatt.edu/Collaborative-Engineering

E-mail: CollaborativeEngr@uwplatt.edu

Call Leann Leahy : 608.342.6124



UNIVERSITY OF WISCONSIN

Colleges

Hustisford Tech Ed – Building a Durable Program with Manufacturing



Dave Jaspersen
Hustisford Jr/Sr High School

This past Fall I began the journey of determining the direction for our Tech Ed Program. By mid-year I gave our school's administration options for future programming. We could have opted for a heavy direction in STEM, a traditional Tech Ed program with a little of everything and specializing in nothing, or a program that has the goal of preparing our students for careers in manufacturing. I suggested, and am supported, in the latter option. The Tech Ed program at Hustisford Jr/Sr High School is now in the business of getting our students the training, experiences, and individual goal setting to prepare for careers in manufacturing whether as a professional or for skilled positions in production.

Relationships are one of the most important assets that I have to help make my program a reality with the support of these manufacturers, school administration, and School Board. My approach is to have a goal of providing the training necessary to meet the need of manufacturing in our area. I share this goal with manufacturers whenever I get a chance to talk with them. Phone contacts, face to face meetings, touring of production sites, and ongoing communication all must occur to get manufacturers to see that I am genuine in my goals and that I can train students to be valuable employees. I am very forward with companies that I talk to. I do not wait for 'permission' from school to talk with them. I make the effort to go out of my way and show I have the drive and direction to meet their

specific needs. Walking into a manufacturer will get me a meeting with their Human Resource director, and quite often with their production manager or even owners. I research companies prior to meeting with them so I know what they produce and if my training of students could be a positive fit to their company. This process eventually leads to the request for their support of my Tech Ed program.

In January, 2015 I gave our School Board a \$102,000 list of machine tools that would be needed to provide adequate machinist-style training. As expected there is a realization that we, as a district, could not possibly provide that amount of financial support on its own. So, the search began.

I have always kept an open conversation with various companies who supported my MRT program; an introductory machinist training that I taught at Power Test, Inc. This program was described in the Fall 2014 edition of Manufacturing Today. I reached out to two of those companies; Krueger Bearings, and Reich Tool and Design and also manufacturers closer to our school. Three of these companies, Krueger Bearings, Reich Tool and Design, and Gardner Mfg have donated a total of \$25,000 worth of machines and tooling! My Tech Ed program is now the proud owner of a Bridgeport Mill, Clausing Mill, and a Goodway Lathe, and a heavy drill press due to their support and generosity.

Support from industry is not always in the form of heavy tooling. An example is my CAD class. There is no CAD software at my school so I spoke with Pivot Point, a Hustisford

manufacturer, about their CAD needs. I found they use SolidWorks and have difficulty finding SW trained individuals. I described my goal of teaching a CAD class that uses software that is relevant for the manufacturing industry. I then asked if they would be willing to sponsor my program by purchasing the first year's license for 20 seats of SW. They said yes with no hesitation! I am in the midst of the download and installation of the software at this time. Pivot point also stepped up by reaching out to their material suppliers. They have brought me sheets of steel and aluminum, offering materials from their cut-offs and scrap, and donating precision measuring tools. We are also working with them to acquire a Youth Apprenticeship placement for the 2015-16 school year.

Other support comes from Berlon Industries who allows their fork trucks to off-load the machine tools that I have been acquiring. Their donation of time and use of their equipment makes the move of the equipment a reality. I have parents that are coming forward to help by small donations of tools: a face mill, 3-phase cords and plugs for the machine tools, and a 'green' grinding wheel. These may seem like minor items but they do reduce the cost of purchases. Two more companies are donating materials, tooling, and measuring tools. One of the unforeseen benefits of these connections is that manufacturers are talking amongst themselves about our program and spreading the word how our Tech Ed program is trying to make a difference for them. They are encour-

aging one another to get involved to make this change a reality for us.

I am sharing this information to help any Tech Ed teacher who is working to make their Tech Ed program relevant to the manufacturing industry. Teachers must understand that manufacturers are looking for you just as much as you are looking for them; they don't always know how to help you out. You must be the driving force and be very forward about how your students will be trained to fulfill the needs of the manufacturing industry. This article is also for the manufacturers who are looking to support a local school but not sure how to make it happen. Manufacturers need to be willing to reach back to a school that is trying to connect with them.

In the end, make this personal! It is truly about building a relationship with manufacturers and keeping that relationship alive. You may not get the support you need at this moment in time; but, the needs of the manufacturer will change and that leads to opportunities for you and them to support one another. When manufacturing companies see that you are serious about supporting the manufacturing industry they will go out of their way to help your program grow.

www.hustisford.k12.wi.us
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Creating the Innovative Thinkers and Doers of the 21st Century



Kindergarten students show off their giraffe rulers they made while studying measurement in their STEM class

The Brillion Technology and Engineering Department is striving to create *the Innovative Thinkers and Doers of the 21st Century*. The program had a major shift in philosophy approximately 10 years ago. The philosophy now reflects the current and future needs of not only business and industry, but also the needs of the students. “We want the young people that go through our program and have the skills, knowledge and methods of thinking that will allow them to be successful in any future career or education opportunity,” says Steve Meyer, Technology and Engineering teacher and STEM coordinator for the district. Stereotypically, schools can be up to 10 years behind business and industry with the technologies and processes taught. Couple this with the notion that we have no idea what some of the technologies and jobs will be like in the next 5–10 years and teachers are required to think differently how on how to teach students. One thing is for certain . . . students are always going to have to think!

With this philosophy in mind, the Brillion program concentrates on giving young people the methods necessary to think innovatively. This will help young people no matter what career path they end up taking. We throw as many content areas at

students as possible. These areas include such things as interior design, electronics and automation, material processing, Lean manufacturing, fluid power, web page development, and the list goes on, and on, and on. No matter what the content area or what the grade level, these topics are taught at the concept and process levels and include all the STEM disciplines and more. The technologies, software, and machines in each of these areas will continually change. By teaching this way, the program has assured that students will be able to adapt to whatever is thrown at them in the future.

The philosophy works and is apparent in the enrollment numbers, diversity, and post graduate success of students. We have a lot of students going into many different career paths. “This is the key to total economic development and a sustainable program,” says Meyer. The philosophy has captured the attention of many companies, economic development organizations, and government agencies. In fact, the school has given over 150 tours and presentations in the past few years for others to learn about this philosophy.

The largest partnership is the connection that the school district has with the

Ariens Company. In 2007, their foundation funded the development of the Ariens Technology and Engineering Education Center, a 10,000 square foot facility connected to Brillion High School. The facility is wonderful, but it is the support of the educational philosophy from the company that is so important. Their leaders realize that for them to be successful, they need a wide variety of people in all areas of the business. The more that young people know about the entire manufacturing process, the better all-around employees they will be. The better they can solve problems, adapt to change, and work as a team on a common goal, the more competitive the Ariens Company and the Brillion community will be.

The Brillion community has created a culture in which STEM education is so important. In fact, the excitement has radiated to the elementary school level. As of last year, all students in elementary school, starting in kindergarten take required STEM education classes. Students as young as 5 years old are studying such topics as Manufacturing, Biomedical, Civil, Aeronautical, and other types of engineering. Students are engaged in hands-on minds-on activities that develop their ability to solve problems and think like engineers, technicians, etc. The program has been such a success that

the community is in the process of designing an elementary school STEM center called the *Exploration Station*. The facility will have the look and feel of a children’s science center/museum, not like regular school as we think of it. “There is a lot of excitement around STEM education in the Brillion School District right now. The teachers, community, administration, parents, students, and local businesses and industry are rallying together to make all of this possible. The biggest winners in the end will be the students involved. It is an exciting time for everyone,” says Mr. Meyer.

To find out more about the Brillion STEM program or to visit and take a tour, please contact instructor Steve Meyer at smeyer@brillionsd.org.

www.brillion.k12.wi.us
(920) 756-9238



Team Brillion supermileage vehicle students compete at the WEEVA Road America Challenge.



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Combining electrical, mechanical and pneumatic technology to meet the demands of paper making.

Electro-mechanical technology and pneumatics becoming an integral part of BPM's Wisconsin paper mill.

Developing an atmosphere of teamwork and collaboration are long term objectives for BPM. Company leaders at the manufacturer cultivate an environment of teaching, learning and leading to incorporate technology and paper making science to support vision and objectives. The outcome is front-line employees with knowledge and expertise to integrate technology into finished paper products.

As the paper making industry has evolved over the decades, so has the technology and tools used in the manufacturing process. At BPM, a growing need of Electro-mechanical technicians with experience in Pneumatics is on the rise. Company leaders are searching for employees with education and experience in these areas.

Electro-mechanical technicians combine knowledge of mechanical technology with knowledge of pneumatic and electronic circuits. Technicians typically*:

- Read blueprints, schematics, and diagrams to determine the method and sequence of

assembly of a part, machine, or piece of equipment

- Verify dimensions of parts, using precision measuring instruments, to ensure that specifications are met
- Repair and calibrate hydraulic and pneumatic assemblies
- Test the performance of electro-mechanical assemblies, using test instruments
- Install electronic parts and hardware, using soldering equipment and hand tools

Electro-mechanical technicians typically need either an associate's degree or a postsecondary certificate. Students focus on electrical principles, manufacturing processes, welding, pneumatics, electrical and mechanical repair of machinery, hydraulics, electric motors and generators, and many other components and processes directly related to electro-mechanical technology.

"Over the years, E&I technicians and millwrights have begun to work more closely together to collaborate efforts on motors and drives to run the paper machine," said Steve VandeLaarschot, BPM Lead E&I Technician. "The two fields had to come together because of computer technol-

ogy and now both departments depend on each other to work and complete projects."

Electrical & Instrumentational (E&I) technicians install, service and maintain electrical equipment including plant lighting and receptacle circuits, motors, starters, motor control centers, programmable controllers, control panels and transformers. Most electrical & instrumentation technicians work in paper mills or food processing industries.

Pneumatics work by controlling the flow of compressed air, similar to the same way electronics control the flow of electrons. Pneumatics use valves to control the flow of air, these valves can be triggered by other sources of compressed air or by a source of electricity. The valves that are controlled by electricity are called solenoids, because they use an electric current to induce a magnetic field which moves pieces of metal around and forces air to move in a particular way. An air nailer has a system like this. The air compressor compresses and stores the air and then when the operator pulls the trigger air is released and drives the nail into the wood.

"One of BPM's paper roll rewinders has it's own pneumatic panel right next to the electrical panel because they work together," continued

VandeLaarschot. "Understanding how electrical and pneumatic technologies work together is a learning process. At BPM, we will work with new graduates to train them how our equipment and manufacturing process works."

BPM manufactures specialty paper and converted papers for the food service and packaging industries. The firm also makes uncoated paper from 100% post consumer waste recycled materials and is committed to environmental savings. The company prides itself on low turnover rate and credits that to the competitive wage and team working atmosphere. Employees work in independent work teams where they have the opportunity for leadership roles.

As technology, electrical and pneumatics have joined together, BPM is a front-runner in the specialty paper industry and a forward focused company looking to employee experienced workers to build long-lasting careers with significant payoff in earnings and personal satisfaction.

To learn more about BPM, visit:

www.bpmpaper.com

* Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2014-15 Edition, Electro-mechanical Technicians.



BPM Inc
A Specialty Paper Mill

ELECTRO-MECHANICAL TECHNOLOGY

Combining Electrical, Mechanical & Pneumatic Technologies

Start your path to a rewarding career in manufacturing!



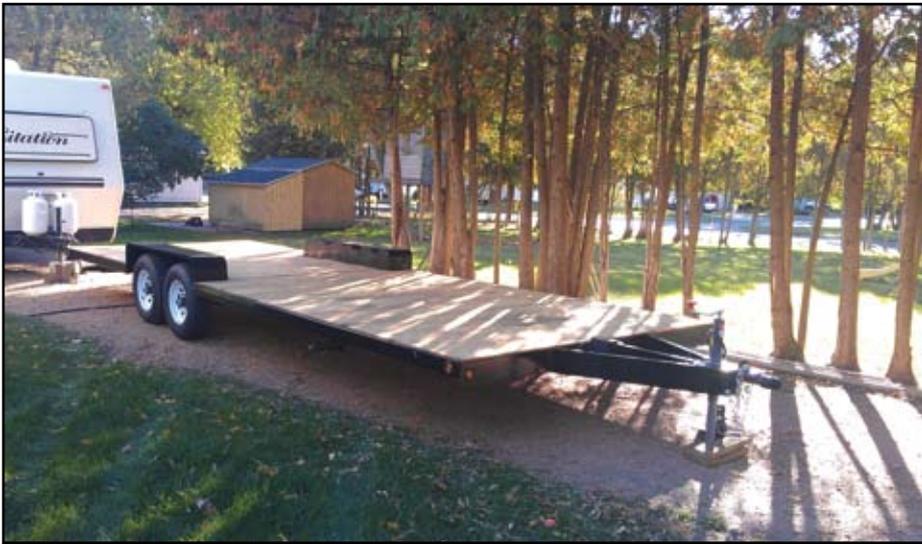
The paper making industry has evolved over the decades, along with the technology and tools used in the manufacturing process.



Electro-mechanical technicians combine knowledge of mechanical technology with knowledge of pneumatics and electronic circuits.

800-826-0494 www.bpmpaper.com Peshtigo, WI

Mosinee Manufacturing



Kyle Dalske

During my high school years, I was always looking for ways to have a variety of valuable experiences. I always figured that since I had to be there anyways, I might as well make the most of it. I heard about Mosinee Manufacturing early on and the opportunity presented fit the criteria. To me, it was a chance to make some money during school, take a class with a teacher that I liked, and a chance to do something I enjoyed during the day rather than sit in typically boring classes. It turned out to be much more than that.

Mosinee Manufacturing is a student-run business and a class at Mosinee High School. It is a business that does a variety of custom metal work for customers. Students take care of inventory, book keeping, business calls, part runs, design, production, and anything else that needs to be done to keep things running smoothly and customers happy. Everything is overseen by the instructor, Steve Kmosena, right in the Mosinee High School metals shop.

Mosinee Manufacturing gives students the opportunity to gain relevant experience in metalworking of all kinds. Students

go through a selective application process and an interview. Students are expected to perform under high standards to complete customer orders. Everyone gets a chance to try a variety of jobs from welding the seams on a dock for a local park, machining custom replacement parts, making customer service calls, creating bills of materials for all major projects, even using a CNC machine to design unique signs. Since there are such a variety of requests, there is ample opportunity to be creative and test individual abilities. It is an environment where collaboration and creativity is not just allowed, it's required.

I credit a lot of that to the instructor, Steve Kmosena. It takes a certain kind of person to facilitate such a diverse group of students. Not many people could mesh city kids, athletes, farmers, and everything in between in such an efficient way, Mr. Kmosena has a unique way of understanding students and how to keep them on task. Steve has mastered this ability to point in the right direction while being just vague enough that students have to think for themselves. To be completely honest, it was very aggravating at the time, but it forced a lot of us to think for ourselves. That's an opportunity not commonly given to youth today. Mr. Kmosena would be the first person to let you know that you did a good job, and also the first to let you know that you did something stupid. In other words, he pushed all of

the right buttons to make us want to succeed while creating high quality work, always in a constructive way.

The impact of a program like Mosinee Manufacturing is huge. It's not just a class or job. It's a mentorship program. It's a chance for any student to explore career options they may not have known existed. It's a chance to be part of an award-winning team. It's a chance to be around like-minded people and be successful. While I was in Mosinee Manufacturing, I witnessed previously anti-social students with a low confidence level develop professionally and take pride in what they were doing and who they were working with. I also witnessed students that were a little too confident learn to work as a team and rely on others. At the time, I was just doing some fun projects with my buddies. I didn't realize the truly golden opportunity that I had become a part of. I am forever grateful for the opportunity offered by Steve Kmosena to be a part of Mosinee Manufacturing.

www.mosineeschools.org/high
(715) 693-2530



UW-Platteville Collaborative Engineering Program

Frequently Asked Questions Answered

Q: *How is UW-Platteville Engineering Unique?*

A:

- Hands-on, lab-heavy experiences
- Theory-based curricula
- No teaching assistants – all courses are taught by engineering professors
- UW-Platteville graduates are prepared to perform engineering functions upon hire

Q: *Are there internships or co-op opportunities?*

A: Yes. There are internships and cooperative education opportunities available to qualified students who register with the UW-Platteville Academic and Career — Advising Center.

Q: *How long will it take to complete an engineering degree?*

A: The time required to earn a degree depends upon several factors: number of credits transferred, initial math placement, number of credits taken each semester, and internship/cooperative education experience. For students wishing to complete an engineering degree on a part-time basis, it is highly recommended they follow the six-year planner found at www.uwplatt.edu/Collaborative-Engineering with the understanding that it may take longer.

Q: *Are waivers or test-outs available?*

A: Yes. Students with extensive training or significant practical experience may be able to waive two pre-engineering courses or pursue the test-out option for other courses. Please note: Many engineering courses are calculus-based and contain significant design components.

Q: *How much will textbooks cost?*

A: When enrolled in a UW-Platteville course, textbooks are issued to stu-

dents by the UW-Platteville Textbook Rental System. The fees to cover the loan of textbooks are included in the student fees portion of the tuition bill. Before the beginning of each semester, textbooks are delivered to the UW Colleges campus designated by the students as their "home" institution, and upon the completion of each semester, the textbooks must be returned to UW-Platteville. Please note: Textbooks cannot be delivered to a student's home address.

Q: *Will my previous college coursework transfer to UW-Platteville?*

A: Credits may be accepted from accredited two- and four-year institutions

recognized by the Council for Higher Education. Courses that are vocational, technical, remedial, or doctrinal in nature are not transferable. If you would like a preliminary credit Evaluation of your transcripts, please send your request to CollaborativeEngr@uwplatt.edu

For more information please contact LeAnn Leahy at 608-342-6124 or email at CollaborativeEngr@uwplatt.edu.

www.uwplatt.edu/Collaborative-Engineering



Innovation That Excites the Imagination



Many people have the misconception that there are no real opportunities in manufacturing. That it is a dirty working environment with limited income and growth potential. This couldn't be further from the truth. American manufacturers are some of the most innovative in the world, producing highly engineered products that are meeting some of the most stringent regulations globally. These manufacturers are making products that work smarter, more efficiently and help conserve resources.

Meet Ben — Smart, hardworking, a little serious but with a great sense of humor

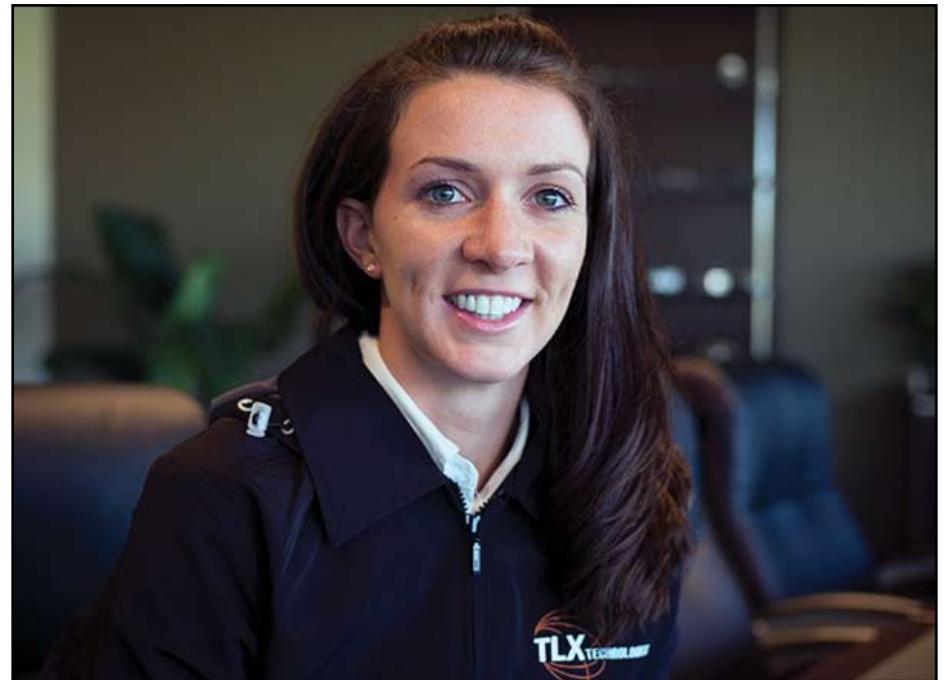
Ben didn't have a formal engineering program or classes at his high school. In fact, several of his uncles who are also engineers got him interested in pursuing engineering as a career choice. It was the right fit. After graduating from high school, Ben went on to attend MSOE in Milwaukee pursuing a degree in Mechanical Engineering.

Ben walked through our doors several years ago as an intern and TLX scholarship recipient. Perhaps he didn't see himself working in manufacturing long-term but was here to gain some experience and put the

concepts and material he was learning in the classroom into practice. His internship at TLX provided him with some real-world experience and a glimpse into what would be required of him once he finished school and secured a job. After graduation, Ben became a full-time employee in TLX's engineering department where he continued to learn and grow professionally. Today, Ben is preparing to attend a trade show in Germany where several of the actuators that he has helped design for the fire protection industry will be showcased.

Meet Alana — Determined, intelligent and with a drive for excellence

Alana's story is quite different from Ben's. She started with TLX Technologies right out of high school almost a decade ago, working on assembling parts. Alana didn't have the engineering classes available to her in high school either. But she did take advantage of the classes she did have such as auto mechanics and electronics. She discovered that she enjoyed working with things that were mechanical and that she was also good at it. Over the years, Alana grew professionally. Under the guidance of TLX's engineering team, she began learning



engineering principals and decided she wanted to pursue a degree in engineering. Alana became a team lead in the production area and began pursuing her engineering degree while working full-time at TLX. Today, she works as a Lab Technician in the engineering and testing lab and will soon have her degree in engineering. Her years of experience working on the production floor gave her a skill set that has been invaluable to the engineering team in the prototyping and testing phases of development.

Perhaps you see yourself in Ben or Alana. Or, perhaps you are interested in accounting or marketing. There are many doors of opportunity in manufacturing available to you here in Wisconsin. Everything from sales to purchasing, computer programmers, machinists, and designers, there is a wide diversity of career options

in the manufacturing sector. According to PEW Charitable Trusts — "Selling Manufacturing to a New Generation", 600,000 manufacturing jobs are available because employers cannot find skilled workers and additional 700,000 jobs will need to be filled by manufacturers in the next eight years due to retirement.

TLX Technologies is excited about the future of manufacturing here in the US. We would like to invite you to explore what career opportunities are available to you through classes, programs and internships available through your school or community.

If you have any questions, please contact TLX at pr@tlxtech.com or visit our website at www.tlxtech.com.



**MANUFACTURING
TODAY
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Raider Products

Max DeHut, Pulaski High School

Two years ago the Technology and Engineering department here at Pulaski High School recognized a need for advancement in some of the programs. A number of the student body had taken all of the classes in the metals area and were ready for more advanced and complex projects. With this need recognized we as a department, with the help of administration, began to research other self-sustaining fabrication school shops around the state. Any of the programs that we

encountered all had the same thing in common, students improving upon their skill base and benefiting from real world problem solving. This seemed like a perfect opportunity for the students of Pulaski, and after consulting our partners in industry and higher education "Raider Products" was born.

What we are trying to accomplish with this program is to give more opportunity for the students to gain real world experience in manufacturing. This is the pilot year for this program, and what typically happens is that a project is



brought to us; a team of students is formed to analyze and price the project, essentially bid it. Then, if the customer likes what they come up with, the students manufacture the project.

Through the project analysis, bidding processes, and manufacturing learning is happening through every aspect of the manufacturing process. There are currently five students on the manufacturing end of the spectrum each with their own strengths in the different metal working fields and one student who runs the books and billing aspect of "Raider Products". All six of the students benefit not only through the experiences that they are part of but also any profits that

"Raider Products" produces is put into a scholarship fund for the students that participate.

Next year with a charter from NWTC and "Raider Products" turning into a regular class we here at Pulaski High School are hoping to continue to offer unique learning experiences to a whole new set of students.

www.pulaskischools.org/high
(920) 822-6000



Cardinal Manufacturing

Continued from Page 8

encouraging students to look at manufacturing careers. Students get hands on opportunities to try out these roles before making an expensive decision in choosing a post-secondary program. In other

words, kids get the chance to try welding, machining, construction, production management, accounting, office management, and marketing prior to committing to a major or area of study. The services provided through the program are worthwhile and valuable to the customers who pay for the service. Since the very beginning, Cardinal Manufacturing has been self-sufficient meaning that they have not ever requested a special budget from the school district.

Cardinal Manufacturing is a year-long two credit class which offers more than a standard classroom instruction. Students in this class gain the real life experiences of problem solving, running a business, and working in professional career roles. Students must apply to be part of this program and manufacturing employees have successfully completed both Metal Working I and II. The application process includes creating and submitting a resume, project portfolio, and a letter of recommendation. Once accepted, student participants are assigned a role that may include:

- Quoting jobs
- Ordering materials
- Manufacturing parts
- Quality control and inspections
- Shipping product
- Receiving product and materials
- Invoicing
- Customer service
- Accounting
- Marketing
- Maintaining work hours

Besides the great experience gained, the students receive a profit sharing check at the end of the school year based upon number of hours worked and other measurement tools. Only a portion of Cardinal Manufacturing earnings are paid to students after expenses and upcoming needs are covered. Most of the money earned supports the purchase of materials, equipment and facility needs to continually grow and improve Cardinal Manufacturing.



www.cardinalmanufacturing.org
www.esschools.k12.wi.us



Robotics welding lab enhances students' skills



Waukesha County Technical College's renowned Metal Fabrication/Welding program has been experiencing marked growth in recent years. The College has long offered a one-year Metal Fabrication/Welding diploma program, but to meet students' needs and employers' demands, a two-year Metal Fabrication/Welding - Advanced associate degree program began in fall 2013.

In response to local manufacturers' requests for skilled workers in the metal fabrication sector, WCTC's new state-of-the-art robotics welding lab, which opened in fall 2014, is being used to teach advanced skills to second-year students.

"The need for this lab was driven by industry," said Michael Shiels, dean of the School of Applied Technologies. "Those hiring welders are looking for employees that have the skills and knowledge in robotic welding."

Advanced program students can focus on heavy plate or robotic welding, and the lab's sophisticated machines make it possible

for students to hone automation welding techniques. It is critical, however, that they understand the theory and mechanics of welding before they apply it to robotics, Shiels said, noting traditional welding and machining practices are studied during the first year.

The lab includes six stations that are outfitted with fully programmable, high-tech Lincoln Electric and Fanuc equipment for robotic welding and automated cutting processes. The lab can accommodate up to 18 students per class session, and a designated computer area provides space to learn programming on specialized software.

The exposure and training students receive in the lab provides them with an edge on the competition.

"No other colleges in the area have a robotics welding lab. This gives our students an advantage as they are able to learn advanced skills and immediately apply them to jobs," Shiels said.



WAUKESHA
COUNTY TECHNICAL
COLLEGE

800 Main Street
Pewaukee, Wisconsin 53072
www.wctc.edu



Productivity Inc[®]

by Hope Riska

What is Oktoberfest Student Career Day 2015?

In support of Manufacturing Education, every other year we hold our Bi-Annual Oktoberfest Machine Tool Show, with the first day being dedicated *only* to Education. Our next Oktoberfest Student Career Day will be September 21, 2015. We invite middle, high school and post-secondary schools in our 5.25 state area to come see the latest Manufacturing Technology under one roof where they will have the opportunity to see many different machines and witness first-hand what these machines can do. Learning how *manufacturing impacts lives* — from Medical Devices that save lives, to automotive innovation as well as robotics and automation.

Everyone seems to have all of the latest devices — iPads, iPhones/Smartphones, etc. — but where did they come from? Someone had to *imagine* it, someone had to *design* it, someone had to *build* it and have it ready to *sell* . . . then, and *only then* do these things end up in YOUR hands.

At our 2013 Oktoberfest Student Career Day, we hosted over 1,100 Students and Teach-

Supporting Manufacturing – Locally and Nationally!

ers from 29 schools (Middle, High School and Post-Secondary), as well as 14 Local Manufacturing Companies participating in the Career Day part of the event. Some Post-Secondary students even brought their resumes most of the companies were hiring!

What is HTEC?

As a Machine Tool Distributor, we work with many machine tool builders. Haas Automation, in particular, has continually gone the extra mile in their support of Manufacturing Education. They include free “membership” in the HTEC (Haas Technical Education Centers) Network, offering educators from across the country, and even throughout the world, the opportunity to network with each other and possibly discover new ways they can improve, continue or start manufacturing programs in their schools.

When they join the “network,” members have access to a wide variety of contacts, benefits and services, including equipment discounts, training conferences, teacher training, educational and online training software as well as many HTEC Technology partners. HTEC Members can contact, collaborate and network with over 1,600 schools — High School and Post-Secondary (Community and Technical Colleges, Universities) throughout the US and Canada.

We were fortunate to have co-hosted the National HTEC Educator Conference last summer with Dunwoody College of Technology. Dunwoody hosted 168 Educators and Industry Partners. Coming up July 27–30, 2015 the National HTEC Educator Conference will be



2013 Oktoberfest Student Day.

hosted by Cal Poly in San Luis Obispo, CA. See www.HTECNetwork.org/conferences.cfm for more information. Registration for the 4-day event is \$150. The 4th day of the conference even includes a trip to the Haas Automation, Inc. factory for a tour!

Why is it so Important to Productivity Inc?

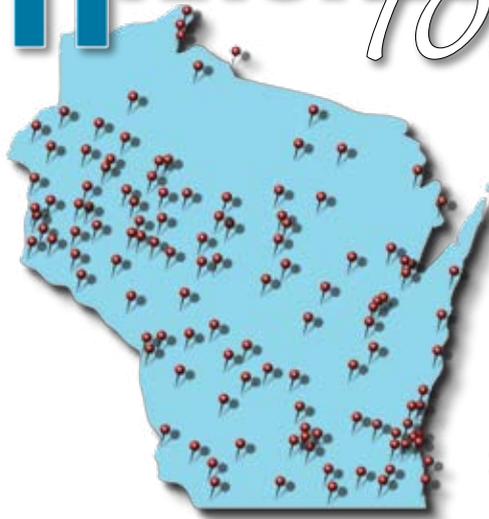
We, as a local Distributor, are fortunate to work with schools in our area — Minnesota, North and South Dakota, Iowa, Nebraska and Western Wisconsin — not only to provide them with educational discounts on Haas machines, but to support and encourage them in their programs as well.

As an Industry, we not only have an opportunity, but also a *responsibility* to do what we can to encourage today’s youth to pursue careers in Manufacturing. When you look at the next 10 years, there are a lot of people in our industry retiring. Yes, we hear all of them time about the shortage of skilled workers. We need to DO something about it, not just talk about it. If WE don’t get Industry and Education working together to excite THIS generation about Manufacturing Careers, who is going to encourage the generations to come?

Watch www.productivity.com for more information on Oktoberfest Student Career Day 2015. If you would like to know more about Student Day or the HTEC Conference, feel free to contact hriska@productivity.com.

Who reads

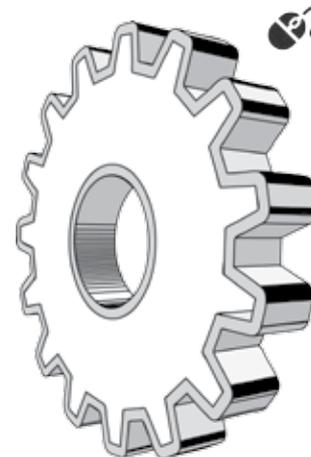
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Who Will Teach the Future?



Mr. Pete McConnell, WTEA Past President, Retired TEE Teacher, Merrill High School

Working with students in Technology Education and Engineering is necessary and important. It always has been and I am continuing to work hard to make sure it is in the future. The question is who will teach the future and why is it important? There is a population of people who think well

when they use their hands and their minds to produce something that can be used. Problem solving skills are second nature to this group because the challenge is fun and exciting. They take pride in providing goods and services to those who depend on their dedication to the product. They continue to look for methods and solutions to make the product the very best. Working together with others to

make decisions is a strength, not a weakness. I hope that you are a member of this group. My concern lies in who will teach this group in the future?

Are you that person who will dedicate your career to training and educating the future workforce of this state or this country? Will you devote time to developing leadership, training, and educational skills that will bring the next generation of laborers into a strong and vibrant production environment? The crucial truth is that your interest in Technology and Engineering Education qualifies you as a candidate to teach the future. It is your knowledge, training, and passion that will encourage others to get involved. There are many opportunities in your school to get involved. There are technical and academic courses you can take to build your knowledge. There are workplace opportunities where employers and teachers work together to teach you important competencies and skills. Student organizations like Skills USA provide you with opportunities to compete and develop skills and leadership character.

Wisconsin as a state has a rich and important history in training and retaining Technology and Engineering Teachers. Young men and women take this responsibility very seriously. Your willingness to

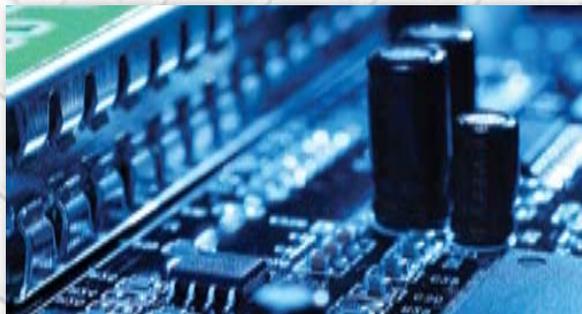
share what you have learned is so important. Who taught you? How long will they be able to continue that role of educating and encouraging young students? If you were to ask them who should continue this strong tradition and educate the future, they would resound in a loud voice that person is YOU! It is you because you are unique and concerned about the quality we bring to the products this nation provides. You are proud of what you have learned and you are anxious to share those skills in a workplace that respects your training.

Consider the opportunity to be a Technology and Engineering Teacher candidate. There are many teacher training institutions in this state that are ready to get you involved with an exciting career. Please talk with your teachers and your friends about this invitation. The shortage of Technology and Engineering teachers that we are currently experiencing is now and will continue in the future to hurt the strength of our economy. Your contributions to this profession are needed now. Look at the future and see yourself as a person who appreciates what you have learned and how you can share that with generations to come. We are counting on you and will be behind 100% of the way!

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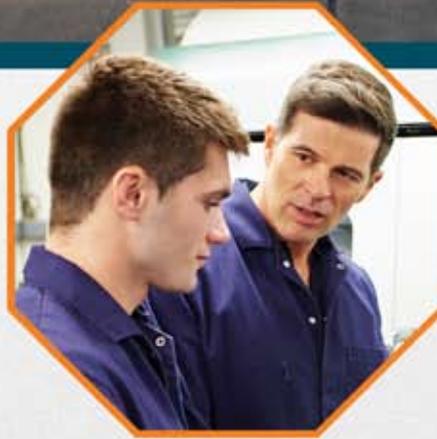
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