

# MANUFACTURING TODAY WI™

*Exploring Manufacturing in Wisconsin*

## More Than \$495,000 in Technical Education Equipment Grants to Serve Nearly 3,000 Students



Students at 17 Wisconsin school districts across the state will benefit from new advanced manufacturing training for high demand jobs

2,927 students in 17 school districts statewide will benefit from advanced manufacturing training in preparation for high-demand job opportunities thanks to grants from the Wisconsin Fast Forward Program.

The current round of Wisconsin Fast Forward grants from DWD totals \$495,106 for school districts across the state to train students for career paths involving robotics, welding, plasma cutting, 3D printing,

drones, and more. These grants reimburse school districts for the costs of purchasing and installing technical education equipment used for vocational training and technical education in advanced manufacturing fields. This includes the purchase of new equipment such as computer numerical control machines, robotic welders, fiber laser cutting machines, 3D printers, and more.

“Fast Forward grants accelerate advanced manufacturing training and equipment to better prepare our future workforce for careers in this high-demand, high-skill industry,” said the DWD Secretary. “The state-of-the-art equipment, including robotic welders, laser cutters, 3D printers, and other high-tech tools, will enable schools to provide coursework that aligns with industry standards and requirements.”

High school students will train in advanced manufacturing fields to prepare for stable careers while they obtain dual enrollment credits, industry-endorsed certificates, and technical endorsements on high school diplomas. Advanced manufacturing refers to a family of manufacturing activities that depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or use

of cutting-edge materials and emerging production capabilities enabled by the physical and biological sciences (e.g., nanotechnology, chemistry, and biology). This involves both new ways of manufacturing existing products and manufacturing new products emerging from advanced technologies.

The awards announced include:

### School District of Nekoosa

Wood County | \$14,425



The school district will use grant funds to buy equipment and software, including an Epilog Fusion Maker Laser Engraver and Corel Draw, to enhance the technical education infrastructure.

### School District of Jefferson

Jefferson County | \$48,210



The school district will use grant funds for an Acer 3VS Vertical E-Milling Machine and a Badger/Miller Welder to modernize the manufacturing lab and better align with industry standards to teach skills needed in the trades.

### Muskego-Norway School District

Waukesha County | \$37,997



The school district will use grant funds to purchase a Laguna Industrial Planer, Laguna Widebelt Sander, and Oscillating Spindle Sander. The equipment will help students prepare for careers in precision manufacturing with various materials.

### West Bend School District

Washington County | \$7,367



The school district will use grant funds for two Markforged 3D Printing Platforms that print with a variety of substrates to align the school's engineering and manufacturing programs with industry standards.

### Pulaski Community School District

Brown County | \$50,000



The school district will use grant funds for an OMTECH CNC Fiber Laser Cutting Machine FC-105CFC, which will prepare students for careers in advanced manufacturing.

### East Troy Community School District

Walworth County | \$29,103



The school district will use grant funds for an Amatrol Industry 4.0 Advanced Manufacturing Learning System to facilitate a new course and support current courses.

### Whitehall School District

Trempealeau County | \$50,000



The school district will use grant funds for a ShopBot Max CNC router, Markforged Mark II 3D Printer Platform, and related software to help students create and fabricate prototypes and final product solutions.

**Continued on Page 10**

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# More than \$493,000 in Fab Lab Grants announced



The Wisconsin Economic Development Corporation (WEDC) has announced that 18 school districts will receive more than \$493,000 in “fab lab” grants to train students in science, technology, engineering, arts, and mathematics (STEAM) skills and prepare them for careers using advanced technologies.

Since the program’s inception in 2016, WEDC has awarded 211 grants totaling more than \$5 million to 125 school districts across the state. Countless fab lab students have benefited from career and technical education (CTE), which has evolved with a STEAM emphasis.

A fab lab, short for fabrication laboratory, is a high-technology workshop equipped with computer-controlled manufacturing components such as 3D printers, laser engravers, computer numerical control (CNC) routers, and plasma cutters. Through its Fab Labs Grant Program, WEDC is supporting the purchase of fab lab equipment for instructional and educational purposes for K-12 students across the state.

To receive a fab lab grant, districts must provide matching funds equal to half of the award. As a result, the schools and the state this year will invest at least \$750,000 in science, technology, engineering, arts, and mathematics (STEAM) education in K-12 schools throughout Wisconsin.

The new grant recipients this year and their awards are:

- **Butternut School District** – \$22,000
- **Deerfield Community School District** – \$25,000
- **DeForest Area School District** – \$25,000
- **Mosinee School District** – \$25,000
- **Muskego-Norway School District** – \$24,700

- **Racine Unified School District** – \$25,000
- **Tri County School District, Plainfield** – \$25,000

School districts that were repeat winners of grants this year and their awards (with year of previous award noted) are:

- **CESA 3 (Consortium) – Fennimore** (2023) – \$47,396
- **Fall River School District** (2019) – \$25,000
- **Hayward Community School District** (2019 & 2023) – \$25,000
- **Nekoosa School District** (2021) – \$25,000
- **School District of New Lisbon** (2020) – \$25,000
- **School District of Random Lake** (2020) – \$24,300
- **Croix Central School District** (2016) – \$25,000
- **Washington Island School District** (2020 & 2021) – \$25,000
- **Waunakee Community School District** (2016, 2017 & 2018) – \$25,000
- **Weyauwega-Fremont School District** (2023) – \$25,000
- **Whitehall School District (Consortium)** (2019) – \$50,000

In addition to the grants, WEDC has developed a fab lab resource page for its website that provides districts with information on how to set up and equip a fab lab, how to implement best practices to ensure a successful fab lab and more.

For more information on the state’s fab labs, including resources for teachers, visit [wedc.org/fablabs](http://wedc.org/fablabs) or follow #WIFabLab on Twitter.

## Muskego-Norway a First-time Recipient

The Muskego-Norway School District is among the first-time recipients this year. With a \$24,700 grant, the district will be able to equip a new lab at Muskego High School, which is now under construction. The STEAM and Health Science addition, to be completed before school begins in the fall, is part of a \$44.6 million referendum voters approved two years ago.

A decade ago, Muskego High School’s career and technical education courses, primarily computer classes, were housed in the high school basement. In time, CTE claimed more space, driven by increasing student interest and the demands of parents, businesses, and industry for more hands-on learning on the latest equipment. In the fall, the CTE programs will have a new home in the STEAM and Health Science addition.

Two veteran educators—James Michlig, college, career, and experimental learning coordinator, and Andrew Bavlnka, director of secondary student learning, who will be the new high school principal in the fall—have watched the programs grow and are awed by the opportunities students will have.

In the beginning, the school’s STEAM program “started in the basement, and now we’re putting it in one of the most visible spaces in our district,” said Bavlnka. “A shop class in 1985 is not what a shop class has to look like today and beyond. These are clean production facilities. Kids are working on computers in very professional environments, and they’re making things. We’re going to see kids who maybe didn’t know what tech ed has for them, a chance to shine in tech ed.”

and high school students, and now, with the WEDC grant, will have a new lab to let elementary students explore additional avenues of learning.

Robert Wray, interim superintendent and co-director of instructional program, said the grant is especially timely as the school has been developing a STEAM program.

“We in the Mosinee School District very much want to cultivate the curiosity of our students and increase student engagement,” Wray said. “Fab labs give students the opportunity to create, to explore, and to engage in learning in a very joyful way. That’s really important to us.”

Typically, middle and high school fab labs are high-tech workshops equipped with computer-controlled manufacturing components such as 3D printers, laser engravers, computer numerical control (CNC) routers, and plasma cutters.

The equipment list for the Mosinee elementary school lab includes a 3Doodlers-Classroom Set, an Aquasprouts Aquarium garden system, a weather station to incorporate into STEM and tech lessons, and 3D and Bambu printers.

In another twist on traditional fab labs, the elementary workshop will be on wheels so teachers can move one unit or another into their classrooms to use from week to week – effectively making it a mobile lab.

[mosineeschools.org](http://mosineeschools.org)



*Courtesy of the Wisconsin Economic Development Corporation*

[muskegonorway.org](http://muskegonorway.org)



## Mosinee’s Fab Lab Grant slated for elementary school

Another first-time recipient, the Mosinee School District received a \$25,000 grant from the WEDC to equip a new fab lab in its elementary school.

A fab lab, short for fabrication laboratory, provides students with hands-on, high-tech learning opportunities in Science, Technology, Engineering, Art, and Mathematics (STEAM) courses.

Although funding is available for labs in all grades, nearly 80 percent of the WEDC grants have been for middle and high school fab labs.

The district has a fab lab serving middle





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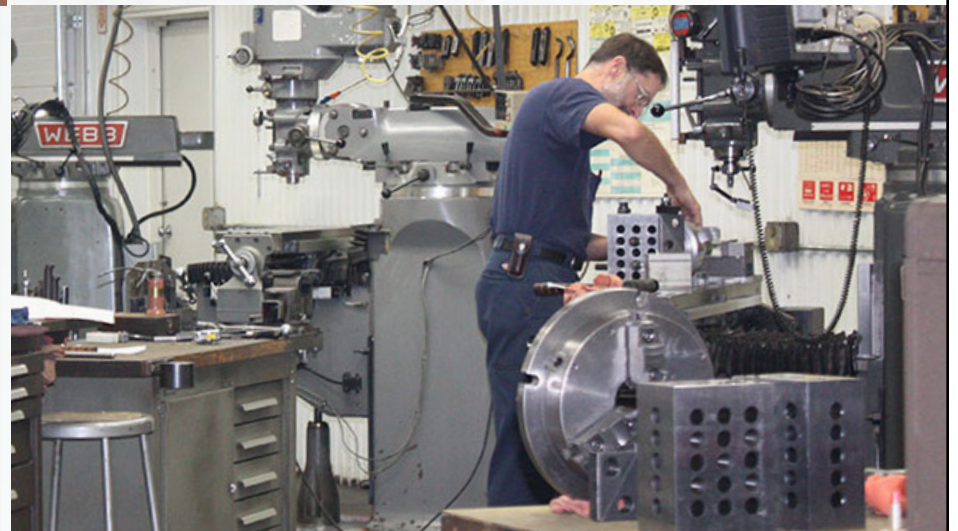
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## Cudahy Students' Skills Shine



*"Dakota Schroeder stands as a shining example of how Cudahy High School not only encourages its students to explore their passions but also prepares them for life beyond high school. Her story is an inspiration to her peers and a testament to the dedication and skill fostered within the walls of Cudahy High School."*

Clare Canfield  
School District of Cudahy

*The School District of Cudahy is a diverse, pre-k through 12th grade public school district located on the shores of Lake Michigan just south of Milwaukee, WI. Our schools offer cutting-edge literacy instruction steeped in the science of reading, as well as multiple pathways to career and personal success.*

### Cudahy High School Junior Takes on Impressive Welding Project

In a remarkable display of skill and dedication, Dakota Schroeder, a talented junior at Cudahy High School, took on a challenging welding project under the guidance of her Metals teacher, Mr. Backes. Demonstrating an impressive level of craftsmanship, Dakota worked on refurbishing a corroded work truck owned by another teacher, who uses it for his summer concrete pouring business.

Mr. Backes, recognizing Dakota's exceptional talents, did not hesitate to choose her for this significant task. Dakota, thrilled by the opportunity, credits her confidence and skills to the support and encouragement she has received from Mr. Backes. The project involves meticulous work, including sanding down the truck's paint and tack welding large pieces of sheet metal.

This endeavor is not Dakota's first foray into the world of metalwork. Over the past few years, she has crafted various metal items, selling them for a total of around \$200. Her ambition and skill have not gone

unnoticed, as she is currently in the process of interviewing for an internship, aiming to continue this professional journey through her senior year. Dakota's ultimate goal is to become a full-time welder after graduation.

However, Dakota's talents and interests are not confined to welding alone. She is also an active participant in several extra-curricular activities at Cudahy High School, including jazz band, track and field, powerlifting, and theater. Her involvement in such a diverse range of activities highlights the school's commitment to offering a broad spectrum of opportunities to its students.

Dakota Schroeder stands as a shining example of how Cudahy High School not only encourages its students to explore their passions but also prepares them for life beyond high school. Her story is an inspiration to her peers and a testament to the dedication and skill fostered within the walls of Cudahy High School.

### From High School Apprentice to CNC Programmer

In the world of engineering and IT, individuals often take unique paths to discover their passion and build a successful career. One such individual is Dylan Dynek, a remarkable graduate of Cudahy High School, whose journey from a high school apprentice to a CNC Programmer at a local manufacturer of equipment used for the aggregate, mining, and recycling industries is both inspiring and commendable.

Dylan's story is a testament to the power of seizing opportunities and nurturing one's interests. He embarked on his apprenticeship the business while still in high school

and has since grown into a skilled CNC Programmer, contributing significantly to the company's success.

Dylan's journey into the world of engineering and IT began during his time in high school. His fascination with computer classes in middle school and shop classes in high school laid the foundation for his career. It was there that he realized his love for designing and creating, and the spark was ignited.

One of the pivotal moments in Dylan's journey was when he crossed paths with Mr. Tom Backes, a mentor who introduced him to the fascinating world of the business and the intricacies of the machinery that crush materials for recycling. It was Backes who played a crucial role in shaping Dylan's path and igniting his passion for the field.

Additionally, Dylan mentioned his teachers like Ms. Kolb, who provided him with valuable support, especially in English-related subjects and his woodworking teacher, Mr. Puryear, who taught him how to program machines and opened doors to new possibilities.

After his high school graduation, Dylan delved deeper into the realms of engineering and IT. His interest in security software and his involvement in various IT projects further showcased his dedication to learning and growing in the field.

At the manufacturer, Dylan found his niche as a CNC Programmer, where he plays a pivotal role in the design and operation of crushing equipment used in recycling processes. This machinery, under his guidance,

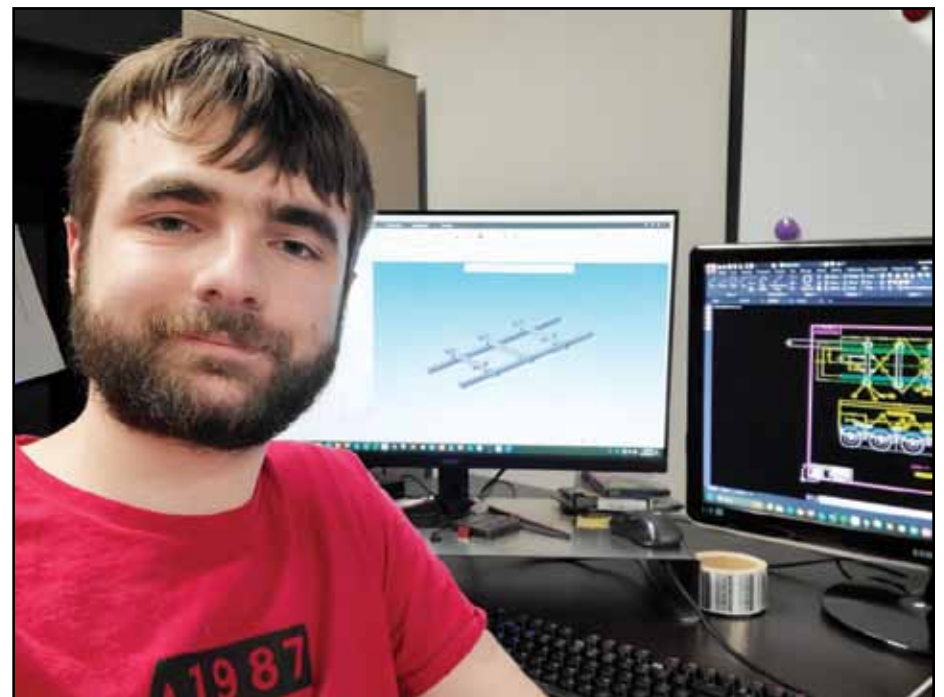
transforms materials into shards or gravel, contributing to sustainability and resource conservation.

As Dylan Dynek continues to excel in his career as a CNC Programmer, he has his sights set on the horizon. His passion for designing and creating innovative solutions in the fields of engineering and IT drives him forward. He envisions a future filled with exciting opportunities to make a positive impact in these domains.

Dylan's journey from high school apprentice to CNC Programmer is an inspiring testament to what one can achieve through dedication, hard work, and the pursuit of one's passions. His story serves as a beacon of hope and motivation for current and future students, demonstrating that with determination, the sky's the limit.

We congratulate Dylan Dynek on his achievements and look forward to witnessing his continued success as he makes his mark in the world of engineering and IT.

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



*"Dylan's journey from high school apprentice to CNC Programmer at Lippman is an inspiring testament to what one can achieve through dedication, hard work, and the pursuit of one's passions. His story serves as a beacon of hope and motivation for current and future students, demonstrating that with determination, the sky's the limit."*



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## CTE Thriving at Muskego-Norway Schools



Andrew Bavluka  
Director of Secondary Student Learning  
Muskego-Norway Schools

### TWIST — Together, Women in STEM Thrive

The WarriorBots, Muskego High School's Robotics team, participates in offseason competitions to improve their skills and work together as a group. Last year, they hosted their first offseason event titled TWIST (Together, Women in STEM Thrive). The event was created to empower female students to participate front-and-center in a predominantly male industry. In order to be a part of the TWIST event, participating schools were required to have all-female drive teams. Drive teams generally include five students: two drivers, a coach, a technician, and a human player. Other members of the WarriorBots, which includes a roster of 24 students and 10 mentors, helped with repairs and strategizing in the pit and cheered the girls on to a first-alliance captaincy and a second-place finish.

"It's a great opportunity to show off what we

can do as a team of women," said Keira Petersen, sophomore drive coach. "We didn't want the event to be intimidating. Robotics competitions are always really encouraging and welcoming. It's definitely a positive community, so everyone is really supportive of each other." Eighteen teams from Wisconsin and Illinois signed up to participate in the TWIST event. Some teams had students who were drivers for the first time, and some teams were made up of two smaller teams in order to have enough girls to participate. The requirement of having all-female drivers enabled girls to take their skills to the next level.

Not only did high school teams form alliances to compete in a double-elimination tournament, but the WarriorBots also included a space for First Lego League (FLL) teams made up of middle school students. "One of our favorite parts about being in Robotics is mentoring younger students," said Reagan Bucholtz, senior human player. "It's a great opportunity for them to get started and hopefully continue into high school with us."

Robotics is much more than just designing and building a robot. Students gain experience in business, marketing, mentoring, community outreach, and gaining a variety of STEM skills. They frequently communicate with business partners to collaborate and fundraise in order to host events and purchase materials they need to succeed. "We all love what we do," said Kierstin Schlevensky, one of the WarriorBots captains and robot co-pilot. "We are constantly learning so many new things and spreading the word on how incredible and passionate we really are as a team."

### Mass Manufacturing class teaches teamwork

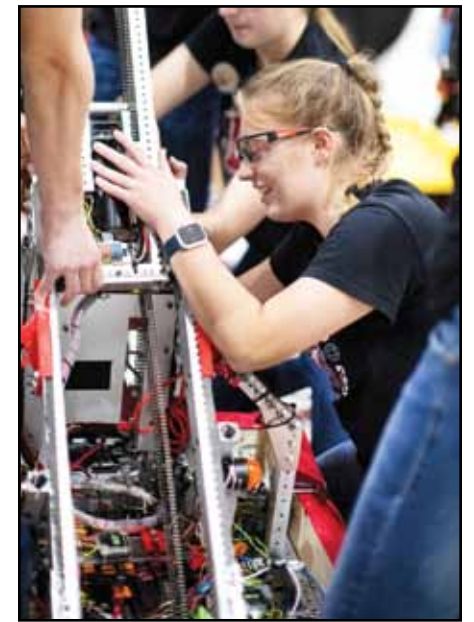
Technical Education courses in middle and high school provide students with an introduction to a variety of skills in the trades. At Lake Denoon Middle School, students in grades 5-8 start working with tools including CNC machines and laser cutters. They also learn how

to cut, rout, sand, stain, and polyurethane using a variety of hand tools. Eighth-grade students in Mass Manufacturing not only work with these tools necessary to build and create, but one of the greatest lessons they learn is how to work well as a team.

Every year, the class is tasked with coming up with a product to mass-produce. During the 2022-23 school year, the two classes (44 total students) came up with an idea to mass-produce Lake Denoon Timberwolf-themed hook and ring games called Hook N' Howl. Students were divided into groups and were engaged with a variety of traditional and modern methods of technical education in order to create consistent products. There were also subgroups of students to package, market, and sell the product. Everyone was involved in the decision-making process related to advertising and the overall game look.

"I really enjoyed being able to have a voice in every step of creating the product," said Khannar Lee, an 8th grade student in Mass Manufacturing. Khannar and his classmates began by rotating through each station to learn and experience all parts of the production process. Later in the course, they were able to choose which part of the production process they wanted to continue to support. Although students became "experts" in one part of the assembly line process, they were familiar with all stations so they could work outside of their assigned tasks when needed. "If I or anyone else at my station were struggling, we could always get help," said Khannar. "And we had to use the tools in a safe way. We had to practice safety above all else."

The whole process—design concept, testing and improving, producing, packaging, and selling—took eight weeks. Together, the classes created 60 games and sold them to staff and families. A portion of the sales was donated to the Christmas Clearing Council of Waukesha County. The classes presented their donation during lunch, celebrating the entire process with one final act of teamwork.



During the 2023-24 school year, eighth-grade Mass Manufacturing students created over 90 mass-produced Leash Lodges and sold them to family and friends. The students were able to donate a portion of their proceeds to Hoovers House All Dog Rescue. The project this year expanded to not only include Mass Manufacturing students, but students and staff across the school. Seventh-grade Kids Biz students designed print and digital media for the Leash Lodge and advertisements, eighth-grade Teen Cuisine students created and packaged homemade dog treats, fifth-grade General Music students composed and sang musical jingles for advertisements, and Special Education students packaged screws and wall anchors.

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## Luther High School Receives Generous Grant that Supports Advanced Manufacturing Learning



Luther High School

In January 2024 Luther High School celebrated the opening of a new education center, which is the home of a brand-new initiative that focuses on Advanced Manufacturing Learning and STEM (Science, Technology, Engineering and Math) Education. Within the school's new center, the Ronald & Joyce Wanek Founda-

tion granted over \$1,139,100 to Luther to acquire state-of-the-art equipment and curriculum. This will provide ample opportunities to connect students with high-demand and high-wage career fields and support student learning that will best prepare them for their future.

The significant financial contribution was provided following a year of collaborative efforts between the foundation, college and industry partners. This united partnership aims to enhance student learning, further network with industry partners throughout the community, and allow transcribed, college credits and industry recognized certifications such as SACA (Smart Automation Certification Alliance) to be earned and transfer seamlessly into advanced manufacturing career pathways at the local

technical college.

"Luther High School is very grateful to the Ronald and Joyce Wanek Foundation, along with our community partners, for their generous gift that will expand our practical arts curriculum," stated Phil Punzel, Luther High School Principal. "We are excited to

launch this new initiative and to focus on involving students in Advanced Manufacturing Learning and STEM Education. Luther High School will have the best facility, curriculum, and instruction that focuses on Advanced Manufacturing Learning and STEM in the region."

Luther High School students have the opportunity to take classes targeted directly at Industry 4.0 skills that includes base manufacturing technologies, smart sensors and devices, control systems, connectivity, networking, automation, and data analytics.

Courses in place or planned include Introduction to Industrial Robotics, Mechatronics, Industrial Controls, IIOT (Industrial Internet of Things), Welding, C&C Machining, Alternative Energy, and more. Students will be learning industrial robot programming, and various mechatronics skills such as pneumatics, hydraulics, electrical controls, data processing, PLC programming,



sensors, basic welding techniques, metal fabrication techniques, CNC programming and machining, and plasma cutting.

"We are using two Fanuc ER-4iA robots, one Fanuc CRX-5iA robot, and soon we will be getting a Fanuc Arc Mate welding robot as well. Being an introductory course, our students are learning about how to jog the robot (moving the robot manually) and program the robot (have the robot perform tasks by itself)," said Brandon Gjestvang,

**Continued on Page 12**

## Technical Education Equipment Grants Continued from Page 1

### St. Croix Central School District

St. Croix County | \$50,000



The school district will use grant funds to acquire a Fanuc Robotic Weld Cell ARC Mate for hands-on experiential learning on equipment in technical college and industry businesses.

### Chilton School District

Calumet County | \$17,235



The school district will use grant funds for an Epilog Fusion Laser Engraver, Engraver Air Pump, Rim-Drive Rotary Attachment, and Vector grid and Filter system, providing students with more realistic production and manufacturing experiences.

### School District of Monroe

Green County | \$50,000



The school district will use grant funds for Multi-process Miller Welders XMT 350, Millermatic 252 wire feed welders, and Dynasty 210 TIG Welders, enabling the school district to work with employers and the technical college to provide manufacturing courses, certifications, mentorship, and career exploration.

### Fort Atkinson School District

Jefferson County | \$10,011



The school district will use grant funds for a 770M CNC Mill to teach students how to set up, program, and use the machine for program design, preparing students for careers in manufacturing.

### Prairie du Chien Area School District

Crawford County | \$50,000



The school district will use grant funds for Industry 4.0 Fundamentals Learning Systems to prepare students for careers in manufacturing processes, automation, and robotics.

### Wausau School District

Marathon County | \$12,062



The school district will use grant funds for an Afinia Dobot Bundle and FANUC ER-4iA Fenceless Robot CERT Cart, allowing students to use authentic industrial technology.

### Hartford Union High School District

Washington County | \$14,166



The school district will use grant funds for a FANUC ER-4iA Fenceless Robot CERT Cart to deliver more industry-defined certifications and Waukesha County Technical College credits.

### School District of Lomira

Dodge County | \$24,751



The school district will use grant funds for a FANUC ER-4iA Fenceless Robot CERT Cart, which is expected to double enrollment in advanced manufacturing courses.

### School District of Milton

Rock County | \$19,615



The school district will use grant funds to purchase a Boss Table 4'x4' CNC Plasma Table and Hypertherm Powermax 45xp plasma cutter, giving students hands-on experience with relevant industry equipment.

### Wittenberg-Biramwood School District

Shawano County | \$10,164



The school district will use grant funds for electrical and plumbing work to purchase a VC999 Horizontal Thermal Form Packing Machine, creating a hands-on manufacturing experience.





# Cardinal Manufacturing

## One of the finest educational programs in the state

It all began in the Eleva-Strum School District, during the 2007-2008 academic year.

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 has been included in national tradeshows and hosted celebrity guests.

### What is Cardinal Manufacturing?

Cardinal Manufacturing is a student run, Technical Education-based, business focused on machining and metal-working projects.

Cardinal Manufacturing is a year-long two credit class which offers much more than 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 must 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



Jake, one of our Cardinal Manufacturing students, recently finished this flag retirement burner for the Hopland-Moen Eleva Legion Post 459. It was an honor to help out our local veterans group.

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 the program.

The company has served hundreds of customers throughout the state of Wisconsin and other parts of the country.

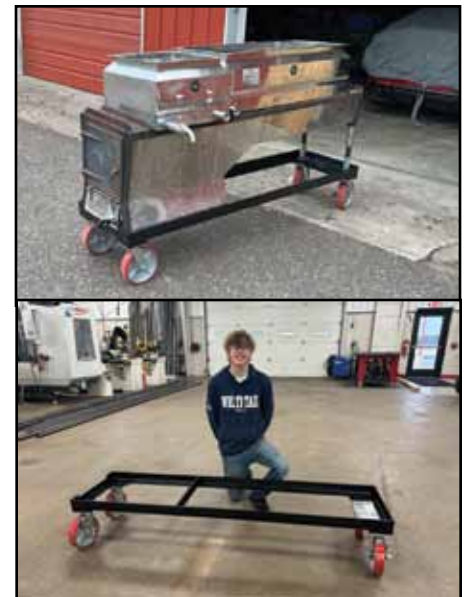
From a simple repair job to custom designed and machined parts, Cardinal Manufacturing meets a wide variety of needs for local individuals and businesses as well as for companies located outside of our immediate area.

The company has access to metalworking and woodworking tools and performs hundreds of repairs each year for individuals, organizations, and businesses. Our shop often fixes items needing a new weld including furniture, wagons, hand tools, décor items, trailers, railings, and more.

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.

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 counselors and parents to be more open to the idea of 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



Cody, one of our welders, just finished up a custom mobile base. This will be used to mobilize a local customer's maple syrup production. We hope we have positively improved your productivity and good luck to your maple syrup season!

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.



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## Pulaski Tech Ed News — A \$50,000 DWD Grant and Tech Wing Expansion



### Pulaski Community School District

The Pulaski High School Technology Department will soon have some new cutting-edge equipment thanks to a \$50,000 Department of Workforce Development Wisconsin Fast Forward grant.

The school district will use grant funds for an OMTECH CNC Fiber Laser Cutting Machine. The grant required matching funds. The matching part of the grant will be used to purchase Baileigh CNC Press Brake, Ellis Metal Cutting Bandsaw 1600 with vertical table, Ellis Belt Sander 6000, 6 Miller Welders Multimatic 255, a 5' x 10' fabrication table, and the building costs were able to be used for some of the matching portion.

The PCSD was one of 17 districts statewide to benefit from the grants, which will help provide advanced manufacturing training in preparation for high-demand job opportunities.

"Our project aims to expand the manufacturing lab, providing students with an enriched learning environment for advanced manufacturing careers," said John Pitzen, PHS teacher and department chair. "By increasing space and incorporating cutting-edge equipment, including a CNC Fiber Laser and CNC Press Brake, students will gain hands-on experience processing diverse materials, focusing on state-of-the-art machinery."

The PHS Technology Department is in the midst of expansion with more space being added to the Tech Wing. A ground-breaking ceremony was held Feb. 29 for that project. Superintendent Allison Space and high school principal Matt Smith followed band and choir performances with remarks of gratitude and excitement.

"Where we are standing, students will experience hands-on learning in automotive mechanics, electronics, metals fabrication, woods technology, small engine repair and whatever our instructors and students dream-up. Our students are hungry to learn in these areas, and we are so grateful to provide them with a facility that makes that learning not only possible, but guaranteed," said Allison.

"It's certainly not lost on me the sacrifices this community has made to support our schools. Your dedication to ensuring your school district best serves its students and community as a whole is more than commendable, and truly appreciated by our kids — even if it's years after they graduate."

According to Local 5 out of Green Bay, Matt Smith, the principal at Pulaski High School said, "This is going to add thousands of feet to our existing tech-ed space, and it's

coming with new equipment that's going to provide our kids some real-life opportunities. This expansion is really going to give our kids a leg up and be prepared. We've got kids that are going to four-year colleges, wanting to be engineers, architects. They're going to be well prepared."

"With increasing our shop areas, PHS will be able to increase the capacity of its technology education offerings," Pitzen said.

"A new paint booth in autos will allow students to be trained in auto body and repair. Students will be using updated equipment in the metals shop to learn skills needed in the advanced manufacturing field."

"Also, the existing metals shop will get six more welding booths to allow more students to be trained. The addition onto the wood shop will be used for construction course so students can build any time of the year and also house some of our CNC equipment," he added.

Pulaski High School has around 150 students who are in youth apprenticeships with



several community partners. These community partners gave feedback to tech-ed officials at Pulaski High School on specific things they're looking for, and this new expansion is expected to give students just that. The expansion will give more room to Pulaski High School's woods and construction space alongside its metals shop and auto shop.

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



## Luther High School Receives Generous Grant Continued from Page 10

practical arts instructor at Luther. "There are many facets of programming the robot which include learning about the parts of the robot, how the robot moves and using those movements to perform different tasks, learning about different types of end effectors (robot heads) and how the robot uses them to perform different tasks, learning about several types of robot code and the multitude of ways to utilize the code to perform complex tasks."

"We plan to partner with the woods area to make some wood/metal collaborative projects, specifically everyday items like fire rings, small signs, but we also hope to make different types of artistic welding projects as well," said Gjestvang. "We have different capstone course ideas for students who exhibit a highly motivated mindset toward different avenues in our Advanced Manufacturing Learning Center. They could range from designing and fabricating a trailer, to designing, programming and assembling a basic automation process. Many ideas have been flowing through my head!"

In addition to those technical skills, students will be learning "soft" skills such

as firm handshakes and eye contact, professionalism (keeping equipment and shop clean and organized) and being on time.

Future expansion plans include adding additional space for the woods area, adding new space for applied technologies, and a new space for welding/fabrication and machining to offer both basic welding and advanced welding/fabrication courses.

"All of the new courses we are offering will be dual credit transferable to a technical college in Lacrosse," said Gjestvang. "Luther became a SACA certification location last summer. This means that down the road students can earn SACA certifications which can be on the theory portion and also hands-on portion of the subject matter they are studying. If they earn any of these certifications, they can put them on their job resumes to put them ahead of other applications for the same positions and/or they can apply them toward a brand-new Automation Leadership bachelor's degree offered at a local university."

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





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## Two Rivers Preparing Students with the Skills Needed to Succeed in Today's Workforce

Tim Engh, Principal  
Two Rivers High School

The Technology Education program at Two Rivers High School is spearheaded by Justin Casper and Jacob Haag. The department offers courses in small engines, automotive, welding, machining, wood-working, construction, and computer aided drafting in which students can earn a number of transcripted credits through LTC in their automotive, welding, and machine tool programs. In addition, interested students can join department clubs and compete in the Skills USA and/or Formula Racing team. The goal of our program is to prepare students with the technical and employability skills needed to succeed in today's workforce. We place a high value and passion on trade and manufacturing related skills.

With the assistance of the Wisconsin Department of Workforce Development Fast Forward Grant and some others, these gentlemen have given the antiquating department a breath of fresh air as we have acquired two new laser engravers, CNC routers, a CNC plasma cutter, twenty new computers for the



**Roni Shannon — CNC Plasma Arc Cutter**

I learned how to multitask and fix problems efficiently, how settings vary between different materials, and a variety of different CAD software. I really enjoy seeing drawings from the computer come to life using this equipment. This experience helped open my eyes to a whole different world that never existed. Each day is something new.

CAD lab, and a new vinyl cutter since 2020.

What better way to make use of all this equipment than by creating a student enterprise class called Raider Manufacturing? Students enrolled in Raider Manufacturing can



**Nathan Dicke — Formula Racing**

I learned how to troubleshoot and fix problems and learned how to work efficiently in cramped areas. I can use this experience to help my family and friends repair equipment. I look forward to passing my knowledge onto my own kids someday.

expect to effectively design, make, market, and sell goods and services by using cutting edge technologies and computer aided drafting to create, plan, organize, staff, market, and distribute a variety of products and materials through a manufacturing enterprise. This real-life course exposes students to how supply

chain management, manufacturing, marketing, and distribution are integrated together in today's modern business world. Students have real customers with real expectations which is something that cannot be taught in a traditional classroom.

Students are able to take the technical and soft skills learned in technology education courses and apply them as youth apprentices as upperclassmen. We focus on teaching students the importance of demonstrating the qualities of a good employee along with all of the soft skills that are needed to be successful in today's workforce, specifically things like being punctual, working as a team, being responsible, conflict resolution, and problem solving. Roughly 10% of the student body at Two Rivers High School is involved with the youth apprenticeship program and that number is growing. It is awesome to see young people getting experience in these in demand career fields.

[trs.schools.k12.wi.us](https://trs.schools.k12.wi.us)



## MPS Invests in Trade, Technical Staff and Facilities for Students Preparing for In-Demand Careers



Milwaukee Public Schools

The country is facing a growing shortage of workers, acutely felt in skilled trades such as electrical, plumbing, and sheet metal work, as increasing numbers of workers reach retirement age. Milwaukee Public Schools is doing its part to help fill that gap, through courses and career pathways that prepare students for high-wage, highly skilled, in-demand careers.

Career and Technical Education (CTE), in the MPS Department of College and Career Readiness, develops and supports those

courses and pathways.

The 2020 referendum approved by Milwaukee voters provided the district with funding to expand arts, language, and physical education instruction, and it also made a difference in the lives of students preparing for trade and technical careers after high school.

"We have been able to upgrade facilities and help with staffing, and we would like to continue to expand and strengthen career and technical education," said Dr. John R. Hill, Director of College and Career Readiness.

Since 2020, the district has added seven

educator positions in technical education and computer science and has been able to fund support staff, such as for the culinary arts program. The additional revenue since 2020 also partially funds the coordinator's position for youth apprenticeships; the program has grown in the past year, with increasing numbers of students becoming apprentices.

Facilities for trade, technical and STEM (science, technology, engineering, and mathematics) instruction have been modernized and expanded since 2020. Learning on up-to-date equipment and using new technology will better prepare MPS students for pursuing careers after high school.

Some of the improvements made since 2020 include:

- A refurbished automotive lab that now includes space for auto body work and a paint booth at Pulaski High School.
- The renovated main computer lab at Washington High School of Information Technology, which now includes a virtual reality area and some new technology.
- An updated weld shop at Bradley Technology and Trade School that can accommodate a new, larger plasma cutter. Besides improvements such as resized duct systems to meet air-quality

requirements, the shop has new, modern equipment.

- A renovated Project Lead The Way lab at Milwaukee High School of the Arts, which offers engineering and design programs. Project Lead The Way is the nationally recognized program that provides hands-on learning in STEM fields.

### Looking ahead

In the 2024–25 fiscal year, MPS will improve more facilities for students where they can gain specialized skills as they prepare to enter the workforce. The district will:

- Upgrade two Project Lead The Way rooms at Marshall High School. The school offers engineering and biomedical science programs to its students.
- Build a new culinary arts lab with state-of-the-art stations and a classroom addition at Bay View High School.
- Renovate the CTE lab, including a new robotics workspace, and provide a broadcast studio with green screen at Audubon Technology and Communication Center.

[mps.milwaukee.k12.wi.us](https://mps.milwaukee.k12.wi.us)





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## Three L-C Seniors Take Part in National Youth Apprenticeship Signing Day Ceremony, Bridging to Registered Apprenticeship



Luxemburg-Casco School District

Luxemburg-Casco High School on May 9 held a National Youth Apprenticeship Signing Day ceremony for three of its students who will be bridging from Youth Apprenticeship to Registered Apprenticeship. The students, and their respective career pathways, are:

- Caleb Delebreau – Sheet Metal Fabricating
- Max Ronsman – Plumbing

- Tanner Veese – Plumbing

All three are graduating seniors who have been working in their youth apprenticeship positions at a mechanical contracting firm, working nationally from its headquarters in Green Bay, over the past year and will continue to do so as Registered Apprentices.

Joining the students at the National Signing Day ceremony were executives from

the contracting firm, including the students' supervisors, the students' parents, and representatives from the Sheet Metal Workers Labor Union 18 and the Plumbers & Steamfitters UA Local 400 unions.

The first-ever Youth Apprenticeship Week (YAW), taking place from May 5-11, is a nationwide celebration that highlights the benefits and value of Registered Apprenticeship program opportunities for those ages 16-24. Registered Apprenticeship is an industry-driven, high-quality career pathway where employers can develop and prepare their future workforce. Participants earn competitive wages and obtain the relevant training and experience to start their careers, often while earning college credit.

"National Youth Apprenticeship Signing Day is a significant milestone for our apprentices as they formally commit to their chosen career paths by signing apprenticeship agreements," says Jolyn Helgeson, school-based youth apprenticeship coach for Northeast Wisconsin Youth Apprenticeship (NEWYA). "This is an exciting time in the journey of these students, when they bridge their knowledge and experience as Youth Apprentices to their futures as Registered Apprentices. I am so

proud of the commitment that these students have made to their future career pathways."

All three of the students have received high praise from their supervisors:

"Caleb (Delebreau) is a hard worker and a great asset to the team. He is eager to learn, and he gets better at tasks and fabrication."

"Max (Ronsman) has a great attitude for anything that you ask of him."

"Tanner (Veese) was a good worker and we enjoyed having him work with us."

According to the U.S. Department of Labor, the number of active youth apprentices increased by 118% over the last 10 years, from 119,996 to 262,221. It also says that 94% of apprentices who complete a Registered Apprenticeship retain employment – with an average annual salary of \$80,000.

Kewaunee County has the highest Youth Apprenticeship participation rate in Wisconsin. Luxemburg-Casco, with 58% of its eligible students engaged in the program, is No. 1 in the state.

[luxcasco.k12.wi.us](http://luxcasco.k12.wi.us)



## Cardinal Manufacturing Continued from Page 11



Cardinal Manufacturing's metal and wood departments were able to collaborate and produce a fun, local project for the M-ES wrestling tournament that took place last weekend. We were excited to be able to utilize our new CNC wood router and give these plaques to the 1st, 2nd, and 3rd place wrestling teams.

From the book "DREAM BIG. HAVE FUN."

Craig Cegielski and his team have written a book on how to replicate this incredible program and it's benefits to everyone involved. The book is free to download and available on the Cardinal Manufacturing website [www.cardinalmanufacturing.org](http://www.cardinalmanufacturing.org)

### Expand Your Students' Horizons with a Student Run Business

#### Exposure to New Opportunities

One of the main goals of the student run business is to expose students to new opportu-

nities and encourage big dreams. Having high school students from a small rural town participate in a big city industry trade show is a regular example. For many of the students all aspects of this type of event are new and somewhat uncomfortable for them the first time around. Dressing professionally, introducing themselves and conversing with industry professionals, and having the opportunity to meet with representatives from large manufacturers of products they admire is an eye-opening experience and confidence builder. Cardinal Manufacturing students have been featured in national magazines and on national television shows. The program has received awards at the state and national levels and students have participated in all these significant events.

#### Scholarships

Students who plan to pursue additional training after school as part of an apprenticeship, technical college, or university likely have costs associated with the education and will find they are eligible for more scholarships because of their participation in the student run business.

#### Learning to Pay it Forward

Community connections are a natural outgrowth of a student run business. Community connections can lead to after-school jobs, references on college or job applications,

friendships, scholarships, or connections to other resources or individuals. Student run businesses may do volunteer projects for the community such as clean up in a park, repair of a railing, or some other service. Taking pride in the community and feeling connected to individuals in the community is good for everyone.

#### Encouraging Entrepreneurial Mindset

The best employees of any operation have the best interest of the organization as a priority and see the work from an owner's perspective. In a student run business teamwork is a priority and leaning about all aspects of the business and the importance of each individual role supporting the overall goal is reinforced. Students are always learning about how to serve each other and the customers. That hands-on experience instills a sense of ownership and thoughtfulness that is beneficial whether the student goes on to work, education, trades, the military, or to start their own business.

*Courtesy of Cardinal Manufacturing, School District of Eleva-Strum*

[esschools.k12.wi.us](http://esschools.k12.wi.us)







## Tech Ed Integral to Career and College Readiness

### Potosi High School Industrial Arts Programs



#### Potosi School District

The Potosi School District is a small, rural district in the far corner of Southwest Wisconsin. Our mission is to focus on every student to develop their maximum potential,

to foster academic excellence, along with career and college readiness through high quality instruction, character education, collaboration, and community involvement. It is with this mission that Potosi's Industrial Arts

Programs are built to serve.

When Dakota Bockenbauer, Technical Education Instructor, came to the district in January of 2018, the current program and facilities had been in a holding pattern for some time.

By the end of Dakota's first semester, the importance of the program and its ability to produce career-ready students was obvious. The following year, a community supported referendum passed alongside being awarded a Wisconsin Fast Forward grant. The entire facilities and program were remodeled from the floor to the ceiling, and equipment, from computers to tools, was upgraded.

Students start with some of the "core" courses including: Woods, Welding, Metals, Structure, and Mechanics. Here students learn basic material and technique theories and turn those into skills through guided projects.

Students build many projects throughout the course, each sequential project adds tools, techniques, and materials to a student's skill set. Other courses like Robotics and Engineering Design, focus on the design process. Again, students are armed with basic techniques and theories and are given

opportunities to turn them into skills through guided projects.

Once students complete at least one core course, as well as the Engineering Design course, they have the ability to take Advanced Shop courses. These courses focus on real world projects. Here the goal is for students to take the tool, technique, and material theories discussed in the core courses and couple that with the design and building processes from Engineering Design. Students are allowed to work on their own projects while completing a Project Portfolio to guide and document their project process.

Students also have the opportunity to complete a service-learning project through the Project Management course. Here students have the opportunity to form a small business, as individuals or groups, and work with a client to complete a project. We typically have a long list of potential clients including community members, non-profits, municipalities, and local businesses. Students will interact with their client to complete project bids, design, estimates, and builds of a particular project. In the rare event students don't have a current project

**Continued on Page 18**

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## FabLab Stoughton Celebrates a Decade of Innovation and Inspiration with Open House



### Stoughton Area School District

FabLab Stoughton, a pioneer in digital fabrication and education, celebrated a decade of innovation and inspiration with an open house last fall.

Over the past ten years, FabLab Stoughton has been a trailblazer in the world of education, providing cutting-edge learning opportunities and serving as an inspiration for FabLabs across the nation. This milestone event is a testament to the lab's dedication to fostering innovation and creativity, and everyone was invited to join in the festivities.

As reported by the Norse Star, the celebration brought in many people, including some from local companies and SHS Fab Lab students and instructors. During the event, many also gave speeches, including District Administrator Dan Keyser, former District Administrator Tim Onsager, and Stoughton Mayor Tim Swadley.

At SHS, five Fab Lab courses are offered, including Fab Lab: Introduction, Fab Lab: Make Something Big, and Fab Lab: Printmak-

ing and Design, taught by Ruth Phillips. Fab Lab: Community Projects and Fab Lab: Individual Projects are taught by Cindy Carter.

"[In Fab Lab classes], students interested in engineering or the arts have the opportunity to use multiple machines to create functional pieces. Students learn how to identify a problem, do research, brainstorm multiple solutions, make a plan, and create," Phillips said.

### A Decade of Digital Discovery

FabLab Stoughton's journey began during the 2012-2013 school year when it was built and assembled. In the fall of 2013, it opened its doors to students, becoming the first public high school in Wisconsin and the second in the nation to establish a FabLab. The lab has since offered courses to 9-12 grade students, hosted workshops for community members, and provided summer school classes for middle-level students, transforming itself into a vibrant hub of learning and creation.



### Setting the Stage for National Recognition

In 2022, FabLab Stoughton served as the backdrop for an episode of "Make48", a national DIY show broadcast on This Old House and Roku Networks. Stoughton proudly became the first small city to host the show, the first to host it in a public high school, and the first to employ an all-student Tool Tech team. This achievement is a testament to FabLab Stoughton's commitment to fostering a culture of innovation and hands-on learning.

### A Beacon of Inspiration

FabLab Stoughton has inspired and facilitated knowledge sharing among 36 school districts in and around the state. As a testament to its success, other FabLabs, such as Waunakee, East Troy, Three Lakes, Turtle Lake, Mt Horeb, and Mosinee, have looked up to FabLab Stoughton as a role model for their endeavors.

### A Global Network of Innovation

At the heart of FabLab Stoughton's success is its connection to MIT's Center for Bits and Atoms, as it serves as an educational outreach component. This connection has led to the creation of a global network, a distributed laboratory for research and invention, connecting

learners, educators, technologists, researchers, makers, and innovators across the world.

### A Vision Realized

FabLab Stoughton was originally conceived as a three-year experiment to provide experiential learning opportunities for high school students using digital technology, including 3D printers, laser cutter/engravers, and computer numerically controlled (CNC) machinery. Co-founder Mike Connor expressed his astonishment, saying, "This has gone way above and beyond my wildest dreams."

### Unlocking Imagination

Math teacher Chris Wiemer explains that having access to this "prototyping facility" has made imagination the only limiting factor. He emphasizes that kids excel at imagining, making the lab's work all the more exciting.

**Contact:** Mike Connor

Email: [mike.connor@stoughton.k12.wi.us](mailto:mike.connor@stoughton.k12.wi.us)

Website: [fablabstoughton.org](http://fablabstoughton.org)

[stoughton.k12.wi.us](http://stoughton.k12.wi.us)



## Potosi High School Industrial Arts Programs Continued from Page 17

request, students will prepare a project proposal for something they think would benefit the school or community. Students will also complete a Project Portfolio alongside the other client tasks.

Our goal is to make students as college and career ready as possible. We think industry approved certifications and youth apprenticeships are a great way to do that. The certifications give specialized skills and resume highlights to our students pursuing either college or a career alike. Currently 4 of the 5 "core" courses have a certification tied with them, with the goal for all 5 to have a certification. Our youth apprenticeship program involves a wide array of industries such as technology, agriculture, medical, and hospitality. Students have the opportunity to work for employers where they earn valuable skills, knowledge, and credit they can apply to their educational career. These opportunities serve college bound and career driven students alike.

This model is still in its infancy but has shown quick growth. In the short five years we have grown the CTE program to 91% of graduates are CTE Participants, 53% are CTE Concentrators, and 51% earn at least

one CTE App (certification or apprenticeship).

We continue to make plans for new courses, curriculum, additions and remodels to our already new facilities and equipment so we can keep pace with rapidly changing industries. All as we continue to strive to better our program and our student outcomes.

*"Our tech ed program is an integral part in our overall system to help our students become career and college ready. While some may still think of technical education as an alternative to a 'regular education' tract, we know that in reality, tech ed works hand-in-hand with the rest of our curriculum, including the same high standards we expect in every classroom."*

— Kurt Cohen,  
Potosi School District Superintendent

[www.potosisd.k12.wi.us](http://www.potosisd.k12.wi.us)







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