BUILDING for the FUTURE

Manufacturing academies are giving students real world experience, college credit, and high-tech manufacturing skills while still in high school

Shelby Anderson

What better way to teach students about business and manufacturing than to have students run their own manufacturing business? Student-run businesses are taking off in school districts across Wisconsin — including Algoma, Green Bay and Hurley.

Student-led manufacturing labs in these districts offer students an opportunity to earn college credit, gain business experience, and develop the skills and knowledge to be successful in the manufacturing industry. In some cases, students are being offered jobs before they graduate high school or developing their own innovative products and businesses.

Opportunities like these are made possible because of school leaders and teachers who go the extra mile and through partnerships between local technical colleges and manufacturing businesses. These partnerships are benefiting school districts, businesses, and most importantly, students.

Algoma Wolf Tech

Four years ago, the technology education department at Algoma High School was average. Students did woodworking, learned how to weld and that was about it.

"It was kind of run-down, not much was happening," said principal/superintendent Nick Cochart.

That all changed when the school district entered into a partnership with local manufacturers and Northeast Wisconsin Technical College in Green Bay. Under this new partnership, the technology education department tripled in size and was fitted with state-of-the-art manufacturing machines. Soon, a student manufacturing business based right in the school was born.

The business — Algoma Wolf Tech — is made up of juniors and seniors who meet for three hours each afternoon

and fill orders, manufacturing custom-made parts for local manufacturers and products such as decorative fire rings. Students are programming, designing, engineering, manufacturing, welding, 3D-modeling, fabricating and machining as well as learning how to work as a team and with customers.

Business has been good for Algoma Wolf Tech. The student-led business helps fill a niche role in the local economy. As Cochart explains it, Algoma Wolf Tech helps local manufacturers be more efficient by producing small orders of custom parts. When a manufacturing company needs a custom metal fabricated piece, it is inefficient for it to shut down a large machine to produce a small piece. This is where the school comes in.

"That set-up and take down time is beneficial to us," Cochart said. "It allows our students to get more practice and experience setting up and running the machines."

Students at Algoma Wolf Tech earn college credit and, so far, all of the students in the business have been offered jobs by local manufacturers before they even graduate high school. In some cases, companies even offer to pay for a student's technical college tuition.

"It's not that different from an athletic scholarship," Cochart

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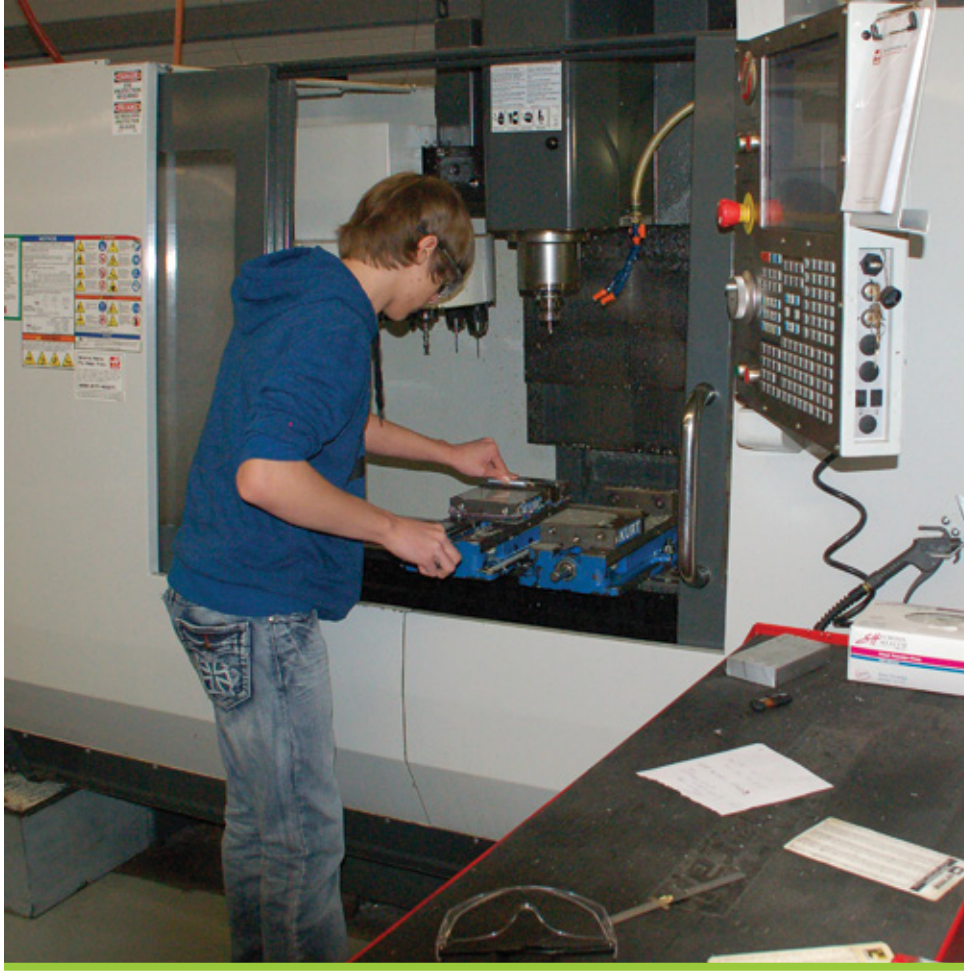
explained. “Except that these students are not only getting an education but also a good job.”

Students have also started their own businesses. Cochart said one student noticed that many of the custom metal fabricated pieces that Algoma Wolf Tech produced were being sent off to another business to finish the product — such as applying a powder coat or special glaze. The student began experimenting with applying finishes to metal pieces in his garage at home; using an old oven his mom threw out. Since then, the student has built a large walk-in oven to accommodate the number of orders he is filling.

Working at Algoma Wolf Tech, allows students to be innovative and work with different technology. “There are so many things you can try here,” Cochart said. “We don’t want students to worry about failure.




Typical Weld Joints, Sections & Symbols
LINCOLN
BAY
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A Partnership Linking

Students at **Bay Link Manufacturing** spend a portion of time devoted to developing products and tools they design themselves.

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We want them to experiment."

Algoma Wolf Tech has also been successful financially. The business is close to funding itself, which would be a tremendous accomplishment considering the costs involved with manufacturing. In the end, though, Cochart said, it's about giving students opportunities. He said he hopes that students will see that good jobs exist right in the community.

"One problem we have is that many of our best and brightest students leave after graduation," Cochart said. "They don't know about what's going on around here. We have manufacturing companies doing business internationally and we want our students to be a part of that success." □

Bay Link Manufacturing

The Green Bay Area Public School District undertook an extensive community engagement effort that addressed many aspects of the school district including career and technical education. Out of this effort, the district started Bay Link Manufacturing, a manufacturing academy located in Green Bay West High School.

This is the first school year that Bay Link has been in existence. Last year, juniors and seniors in the school district were invited to apply. About 15 students went through the application process, which included an interview with teachers and representatives from manufacturing companies, and 12 students were selected.

For three hours in the afternoon of each school day, the students work as a team completing orders for manufacturing companies, working on student-developed products and ideas, and developing the business. In addition to the manufacturing work, students make sales calls and visit with manufacturing leaders. Teacher Andy Belongia said the business side of Bay Link was daunting at first to students.

"You can see the confidence building in the students," Belongia said. "Now they can sit down in a conference room with representatives from big companies."

Students earn high school credit

and, through a partnership with Northeast Wisconsin Technical College, they get three college credits. In addition, some of the revenue that Bay Link Manufacturing brings in gets distributed to the students at the end of the school year in the form of scholarship money. "Students have a little stake in the game," Belongia said.

Bay Link is run like a business. Students are graded based on their work but also employability skills such as the ability to meet deadlines and work with others.

"We wanted to do more than just teach students how to weld," Belongia said. "We have a rubric of employability skills and hard skills, such as showing up on time. At the end of each grading period, students have a review just like you would have at any job."

Like Algoma Wolf Tech, much of the work that Bay Link does is for larger manufacturing companies that need a small, custom job completed. Area manufacturers send blueprints to Bay Link and the students calculate how much the order would cost to produce. Students at Bay Link then send a bid sheet back to the company and wait for their response.

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Belongia said an advantage of Bay Link is that it can complete small-scale manufacturing orders quickly. "Manufacturing is moving faster and faster," he said. "These companies can't wait weeks or months to get a part from overseas."

Bay Link hopes to be self-sustaining in three years. Until then, it will continue to receive support from the school district, NEW Manufacturing Alliance, Northeast Wisconsin Technical College and a host of donors.

"They know they're helping to build the manufacturers of tomorrow by working with us," he said.

For school districts that are interested in starting a manufacturing academy or student-led business, Belongia said the most important step is to make sure your school district is 100 percent supportive. Another key component is developing a relationship with a local technical college so that participating students can earn college credit while in high school. Finally, Belongia said partnerships with local manufacturing companies are essential. "You have to have someone from the manufacturing industry who will be a champion for your district." ■

Shelby Anderson is editor of Wisconsin School News.

Now, with the right equipment in place, students complete work orders from local industry partners and community members and organizations.

Northwoods Manufacturing

Thanks to donations and support from local industry, community members, and the Hurley School District, Northwoods Manufacturing, a student-run business based in Hurley High School, opened its doors at the beginning of the 2013-14 school year.

Students learn how to develop a good work ethic, do advanced machining on metal and wood, and enter into the workforce in a manufacturing career. Northwoods Manufacturing was made possible when Hurley High School's technical education department underwent a complete overhaul. With support from industry partners, the school purchased manufacturing equipment. Students also helped by building new work tables and welding booths, and repainting the facility's walls.

With the right equipment in place, students in Northwoods Manufacturing complete work orders from local industry partners, organizations and community members. Northwoods Manufacturing has a metals division and a woods division, which provide students with a variety of manufacturing experiences and its customers with a range of products and services. Examples of the products and services include: machine parts for local industries, coffee/end tables for local furniture vendors, trailers, custom hitch plugs, grills, and fireplace mantels — to name a few.

"Our mission is to provide students with real world manufacturing experiences that will prepare them to enter the work force with production skills and work ethic to make them desirable candidates for industry," said Teacher Roger Peterson.

At Northwoods Manufacturing, the emphasis is on "real world application." Students are learning manufacturing skills by producing products for their business.

"This type of program has been great for student morale and skill level as they see an immediate purpose to the skills they are being taught," Robertson said.

In only its second year of operation, the business is gaining recognition. In January, Northwoods Manufacturing received the 2014 Business of the Year Award from Iron County. Students and staff are continually refining their curriculum and business to find ways to make it more efficient and effective. □