

Working Smarter To Combat The Labor Shortage



Students Aaron Ford (left) and Edwin Hiler learn CNC (computer numeric controlled) programming at Pine Technical and Community College.

Employers are struggling to find new employees who possess hard and soft skills, so Minnesota colleges are adapting their academic programs to fill the void.

by [Gene Rebeck](#)

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Traci Tapani, owner and co-president of Wyoming Machine Inc., a precision sheet-metal fabrication firm in Stacy, north of the Twin Cities, is one of hundreds of Minnesota employers who have experienced the labor shortage first-hand. That shortage isn't always reflected in a lack of applicants.

"Finding people that actually already have the skills they need to succeed in a manufacturing environment is difficult," Tapani says. "We can find people, but that doesn't mean they come with a complete set of skills."

Wyoming Machine's customers design and assemble automotive testing equipment, thermal processing equipment and custom components for the defense industry, among other specialized sectors. To meet the demands of these customers, manufacturers like Wyoming Machine need more than unskilled laborers who do one task or set of tasks over and over. They need highly trained welders, as well as press brake operators who can run, program and trouble-shoot computer numeric controlled (CNC) machine tools.

"The positive side is we can get people, we are getting applicants," Tapani says. "But we have a lot of work to do to get people up to their best potential and really help the company."

Though the worker shortage is difficult to quantify precisely, there are plenty of reports from businesses across the state that say finding qualified hires has become more challenging. With low unemployment rates and a steady stream of baby boomer retirements, many Minnesota employers such as Wyoming Machine are finding it problematic to identify the skilled employees they need to grow.

But along with "hard" technology skills, Minnesota businesses are seeking employees who are also adept at soft skills such as communication and critical thinking. Finding people with both sets of skills might well be a key reason for the labor shortage many companies are facing. People with both hard and soft skills are hard to find. This reality has pushed the state's educational institutions to align their programs to meet the needs of employers and their potential and current workers in new ways.

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Skills on the floor

So what are employers asking for? Many of their requirements are not surprising—high-tech skills, according to Minnesota postsecondary education leaders. Businesses are looking not only for software engineers and other IT talent, but for analysts who can make use of the abundant data that social media, mobile devices and shop-floor equipment are generating. Manufacturing firms also are looking for workers who are comfortable with IT, as digital technology makes its way into more production processes.

Wyoming Machine has been working with Pine Technical and Community College in Pine City. Heidi Braun, customized training program director at Pine Tech, says she's seeing increased demand for CNC machinists and welders. Computer skills, safety training and blueprint reading are other skills in demand.

But what employers are asking for goes beyond technical prowess, Braun says. They also want what she calls "career success skills." These include workplace civility, a key area for which companies are seeking training for employees. Workplace etiquette and conflict resolution training also have been in high demand in the past few years. "Texting on the shop floor is also a part of this," Braun says. At a more basic level, a new generation of workers often needs to be taught about "showing up on time, or even at all," she adds.

The mix of hard skills and soft skills needed varies among industries. "What I can tell you generically is that employers are looking for both the technical skills needed to do the work but also the broader soft skills they need as well," says Steven Rosenstone, CEO and chancellor of the Minnesota State Colleges and Universities system, which provides standard and customized education programs in numerous vocational fields. Overall, he says, "It's not enough to be a machinist or a person skilled in, say, mechatronics. They also want people who can interact well with customers or patients, be innovative and work well in teams."

"Whatever sector you're in, technology is playing a greater role than ever," Rosenstone says. At the same time, the ability to communicate across diverse sectors and with people from diverse backgrounds also is increasingly important. If labor shortages continue, employers will need to more effectively gain access to the state's immigrant communities for workers. Managers and fellow employees will need to know how to communicate with immigrant hires. Minnesota State, formerly known as MnSCU, serves more than 63,000 students of color, Rosenstone reports. In 2015, 48,000 of its roughly 400,000 students were the first in their families to attend college.

Minnesota companies, including manufacturers of all sizes, are seeking good communicators, Rosenstone notes, partly because more of them are reaching overseas markets. These businesses need people who can contribute to important thinking about the future of their company, and not simply do a specific job, he says.

One school in the Minnesota State system is Hennepin Technical College in Brooklyn Park. Rich Kelly, Hennepin Tech's director of manufacturing quality and productivity, says he's seeing increasing demand from employers for people with skills in advanced manufacturing. That's a field that includes mechatronics, robotics and other IT-driven skill sets. Advanced manufacturing can involve working with exotic materials such as titanium and composites. In the Twin Cities area, he says, many Hennepin Tech graduates are putting their advanced manufacturing education and training to use in fields such as medical devices and aerospace.

"Companies are looking for individuals with advanced knowledge and skills," Kelly says. He's also seeing more demand for foundation skills, including the fundamentals of science and mathematics, even up into the intermediate level. This need encompasses trigonometry, for understanding complex parts as well as basic statistics, which is often useful in quality control.

Like many educators, Kelly notes that "soft skills are becoming essential skills." That's particularly true for new supervisors who don't have a foundational knowledge in conflict resolution, team building and other communication skills. Employees at many levels need to know how to "send out a coherent email, communicate with senior leadership, get across concerns, problems, plans of action, opportunities for improvement," Kelly says. There's been a greater emphasis on these skills as the IT world moves more into manufacturing, he says.

Marguerite Dummer, Hennepin Tech's academic dean, says that Hennepin Tech offers courses that specifically teach soft skills; it also integrates many of these skills into many of its "hard" programs.

Learning to lead

Businesses also are looking for "soft-skill" thinking in their management hires. This is where Minnesota's liberal arts colleges and MBA programs are responding to employer demand.

"One of the things that I've seen that's changed dramatically is that in addition to communications skills, students need to know how to communicate across points of view, across cultures, across disciplines, across boundaries," says Rebecca Bergman, president of Gustavus Adolphus College in St. Peter. With a more diverse workforce, and more global markets, businesses are operating in a more complex environment. "There is practical importance of looking across disciplines and multiple perspectives at multi-dimensional problems and issues," Bergman says. This is a way of thinking and leading that the liberal arts is well positioned to engender, she maintains.

Melissa Goodson, assistant professor at the College of St. Scholastica's School of Business and Technology in St. Paul, says that employers have shared many examples of employee skill gaps. They have indicated that many undergraduate students don't know how to communicate and present information in a professional manner. They also want these young people to be able to work in teams to make change happen, she adds.

One way St. Scholastica is addressing the needs of business is through its new leadership and change MBA program. Unlike traditional MBA programs specializing in disciplines such as accounting or marketing, the

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new program focuses on “strategic leadership” skills, including communication and how to effectively move change through an organization, Goodson says. St. Scholastica is offering the programming on an ongoing basis in St. Paul and Duluth.

Julie Sullivan, president of the University of St. Thomas in St. Paul and Minneapolis, says that the employers she and her colleagues talk with are looking for technology skills, something in demand in numerous industries. The St. Thomas School of Engineering is expanding rapidly, she says. It’s also offering many new programs in data analytics. And like her colleagues in the community colleges, Sullivan is hearing from employers that they’re looking for both technical skills as well as what are typically liberal arts skills. She labels that situation “an interesting paradox.”

St. Thomas blends liberal arts education with business-world needs through courses and programs designed to build entrepreneurial skills, which includes “holistic thinking, innovation and multidisciplinary approaches,” Sullivan says. These are skills many established firms are seeking as they grow through new products and markets. “We now have an entrepreneurship major,” she says. “We also have an undergraduate minor in entrepreneurship, and we’re also offering entrepreneurship in our MBA program.”

In addition, St. Thomas sponsors an annual business ideas competition. Gustavus Adolphus has a similar program called the Gusty Cup, whose name plays off the annual Minnesota Cup entrepreneurship competition. In this program, Gustavus students develop a proposal for a new business that would lead to alumni involvement as mentors or advisors to the students. The Gusty Cup is designed to develop “a combination of practical skills with associations to a business and classroom learning,” Bergman says.

Working together

How education and training are delivered is crucially important to both employers and schools. The rise of online programs and other flexible approaches reflect that interest.

Wyoming Machine, for instance, has used an interactive TV connected with Pine Tech and other schools in the region that provide instruction during work hours. That way, students don’t have to cut into their post-work time to take classes where they’re working toward certificates and college credits. Nor do they have to sacrifice earning an income.

“The downside is we’re paying people to go to school to earn college credit,” Tapani says. “But I think it’s benefitting both parties.” Wyoming Machine gets more knowledgeable employees. And employees get credits that can lead to more opportunities going forward, either at the company or elsewhere. “We’ve found this improves the relationship between the employer and the employee,” she says.

Tapani would like to see similar college-level programs that would teach what she calls “the book-learning side of welding.” CNC technology education is another area companies like hers would benefit from, particularly given the dearth of qualified press brake operators.

There’s one problem that Tapani readily acknowledges. “The press brake is very expensive,” she says. “It’s generally going to be above the \$100,000 range. Not a lot of schools can afford to put these things on their floor.” One way her company can address that is by offering teaching time on its own equipment, while schools like Pine Tech provide the actual education. “We can help with some of the hands-on aspects and partner that way,” she says.

When it comes to developing a 21st-century workforce, employers and educators will need to work together in ways like this. Call it a forward-thinking entrepreneurialism

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