ROCHESTER BUSINESS JOURNAL
RBJ
WWW.RBJ.NET JANUARY 12, 2018

# Manufacturing jobs go begging

## Multiple efforts underway to convince job seekers of field's value

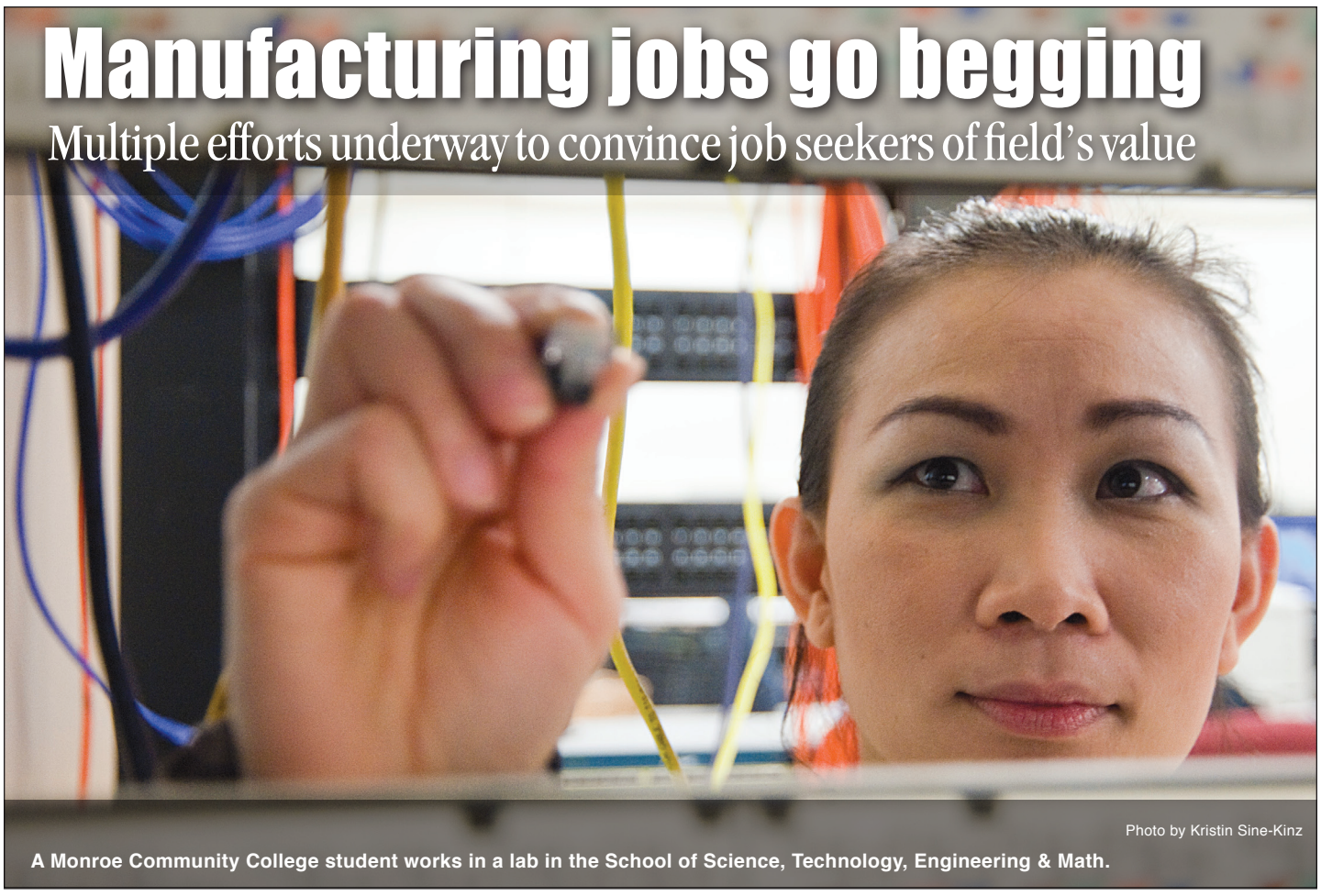

Photo by Kristin Sine-Kinz

A Monroe Community College student works in a lab in the School of Science, Technology, Engineering & Math.

**By VELVET SPICER**

Manufacturing has grown up.

It may not be the sexiest career choice, but gone are the days when you came home from the factory floor covered in dirt and sweat, clamoring for a cold beer and a coffee table to put your feet on. With technological advances and an ever-increasing move toward automation, manufacturing looks nothing like it did just a few decades ago.

Manufacturing is an industry that not only pays well but is expected to have millions of job openings over the next decade. It's also an industry whose skills gap seems to be widening on a daily basis.

"Over the next decade, we expect about 3.5 million manufacturing jobs will need to be filled—and we expect nearly 60 percent of those jobs will go unfilled because of the skills gap," said Carolyn Lee, executive director of the Manufacturing Institute, a Washington, D.C.-based organization dedicated to improving and expanding manufacturing in the U.S.

By some estimates, every job in manufacturing creates another 2.5 new jobs in local goods and services. And for every $1 invested in manufacturing, another $1.37 in additional value is created in other sectors.

"That is why it is so important to expose the future workforce to modern manufacturing," Lee said.

The Manufacturing Institute has led a strategic effort to develop a manufacturing workforce and pipeline and is addressing the skills gap with initiatives focused on changing the perception of careers in manufacturing, re-establishing the U.S. as the global leader of manufacturing education, and advocating for education and job training policies that strengthen the U.S. manufacturing workforce.

Studies from the organization and Deloitte Development LLC have found that while seven out of 10 parents want manufacturing in their community, only three out of 10 would encourage their children to pursue manufacturing careers. Millennial respondents, or those aged 19 to 33, ranked manufacturing as their least preferred career destination.

"The younger generation, either they don't have the drive or they don't know what's available," said James Kosowski, owner of Ztek LLC, the in-house manufacturer for Troyer Race Cars. "It's not the most glamorous trade but I think … we need a skilled workforce to support it or it's going to end up not here."

More than three-quarters of parents in the Deloitte study who said they would not encourage their kids to pursue careers in manufacturing cited job security and stability as one reason, while 56 percent cited industry perception.

And while salary also was given as a reason for discouraging a career in manufacturing, data from the Bureau of Labor Statistics show that the average manufacturing worker in the U.S. earns nearly $20,000 more, including pay and benefits, compared with the average employee working in other industries.

In 2015, the average manufacturing worker earned $81,289 annually, while the average U.S. worker earned $63,830.

"The business carries a stereotype from years of old," said Michael Failing, a 22-year manufacturing veteran who now works in business development for Micro Instrument Corp. "The parents aren't as informed as I think they should be as to what's out there."

A 2015 Deloitte report corroborates Failing's experience with the skills gap. The report notes that the negative image of the industry, coupled with a scarcity of science, technology, engineering and math talent in high schools, make recruiting the right candidates challenging for manufacturing companies.

In addition, said Neal Evans, plant manager at General Motors Co. - Rochester Operations, some manufacturers who used to rely on kids who grew up on farms to round out their workforce —because they had both a mechanical background and a good work ethic — are now having to look elsewhere to staff their facilities.

"All those kids have gone away or don't want to travel this far to work," Evans explained. "We're getting (employees) from a different population, so they're not maybe as adept at some of the things we do."

Failing also noted that many area high schools are not promoting manufacturing as a viable career choice. A poll by the Foundation of Fabricators & Manufacturers Association found that 52 percent of all teenagers said they have no interest in a manufacturing career, and of those students, more than 60 percent perceived a manufacturing career involving a "dirty, dangerous place that requires little thinking or skill from its workers and offering minimal opportunity for personal growth or career advancement."

Many manufacturers are finding the need to address those perception issues, and they're doing it in a number of ways. Manufacturing Day is a celebration of modern manufacturing meant to inspire the next generation of manufacturers. Started in 2012, the event occurs on the first Friday of October each year.

In 2016, some 2,800 events were planned for Manufacturing Day, involving nearly 268,000 students. Eighty-four percent of those students said they were more convinced that manufacturing provides careers that are interesting and rewarding. Last year more than 2,900 events were planned nationwide.

The Manufacturing Institute sponsors a network of companies and organizations committed to changing the perception of manufacturing through its Dream It Do It program, which engages students through summer camps, ambassador programs and local competitions.

The Finger Lakes Advanced Manufacturers' Enterprise, or FAME, an initiative of the Finger Lakes Workforce Investment Board and a collaborative public/private partnership of regional stakeholders, has made as its goal to "close the advanced manufacturing middle skills gap in the Finger Lakes region by Dec. 31, 2023."

To do that, the organization—which includes representatives from Monroe Community College, Finger Lakes Community College, Rochester Institute of Technology, Genesee Community College and others—suggests a significant investment in marketing collateral to promote manufacturing as a career option, as well as creating a full-time advanced manufacturing navigator position to serve as a dedicated resource focused exclusively on the segment.

FAME also recommends organizing a yearly manufacturing design competition between teams of high school and middle school students that can be leveraged "to galvanize the community around manufacturing as a career," the group wrote in its strategic sector plan last year.

Many area manufacturers have taken it upon themselves to visit high schools and BOCES facilities to draw interest and attention to the industry. Some offer tours and other events at their businesses to encourage students to consider careers in the field.

For Manufacturing Day, NYMAT Machine Tool Corp. in Perinton hosted more than 120 students and a number of BOCES educators to show kids the various avenues available in the manufacturing industry.

"Manufacturing as a general term doesn't mean that you go and learn how to run a machine and you stand there for the rest of your life and make parts," said Jim McGaffin, sales manager for the Haas Factory Outlet division of the firm. "We showed them how you can get into programs that teach you a really in-depth skill like mold-making or tool-and-die. We showed them how to get into maintenance and service technician work. We showed them how to get into computer aided design and programming as an avenue of employment."

While high school students are able

to participate in a number of manufacturing-related courses through BOCES, various other training opportunities exist. YAMTEP Inc., or the Young Adult Manufacturing Training Employment Program, is a local not-for-profit organization that provides manufacturing skills and training services to young adults looking to enter the workforce.

The program is designed for individuals age 19 or older who have completed the city of Rochester's Operation Transformation Rochester Employment Readiness program. Founded in 2015 by Tyrone Reaves, owner of TruForm Manufacturing, YAMTEP has partnerships with more than 30 employers to provide gainful employment in the industry.

Workforce development also plays an important role in the manufacturing skills gap, experts say. Manufacturers are finding apprenticeships and tuition assistance helpful in closing the gap. Many of the region's colleges and universities offer manufacturing programs.

"All of our community colleges—Monroe Community College, Finger Lakes Community College—they all have applied technology or manufacturing programs," McGaffin noted. "The drawback is once they've finished that it's barely entry level. That person isn't going to walk out of MCC and walk in and be a skilled machinist. He still has to do a lot of training and pick up a lot of firsthand experience."

Business leaders say that's where on-the-job training and apprenticeships come in.

"Companies that engage with programs like internships and apprenticeships will help cultivate the next generation of skilled workers our country needs to fill the jobs of tomorrow," the Manufacturing Institute's Lee said.

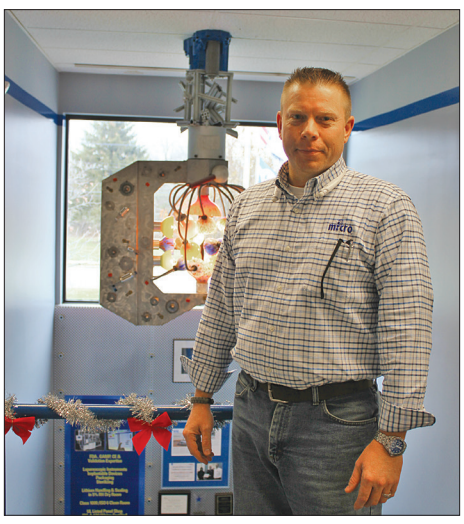

Photo by Velvet Spicer

**Michael Failing is a 22-year manufacturing veteran who now works in business development for Micro Instrument Corp.**

To that end, Rochester Technology & Manufacturing Association has partnered with the Workforce Development Institute, the Manufacturers Alliance and MCC to coordinate apprenticeships between academic partners and manufacturers in the region. RTMA will serve as the intermediary, connecting manufacturers with funding from the U.S. Department of Labor's American Apprenticeship Initiative.

In 2015, the Department of Labor awarded the United Way of Buffalo & Erie County, in partnership with the Erie County Workforce Investment Board, a nearly $3 million grant to support registered apprenticeship programs in Western New York. The program was designed to enhance existing apprenticeships and create new registered apprenticeships for high-demand occupations within the advanced manufacturing industry.

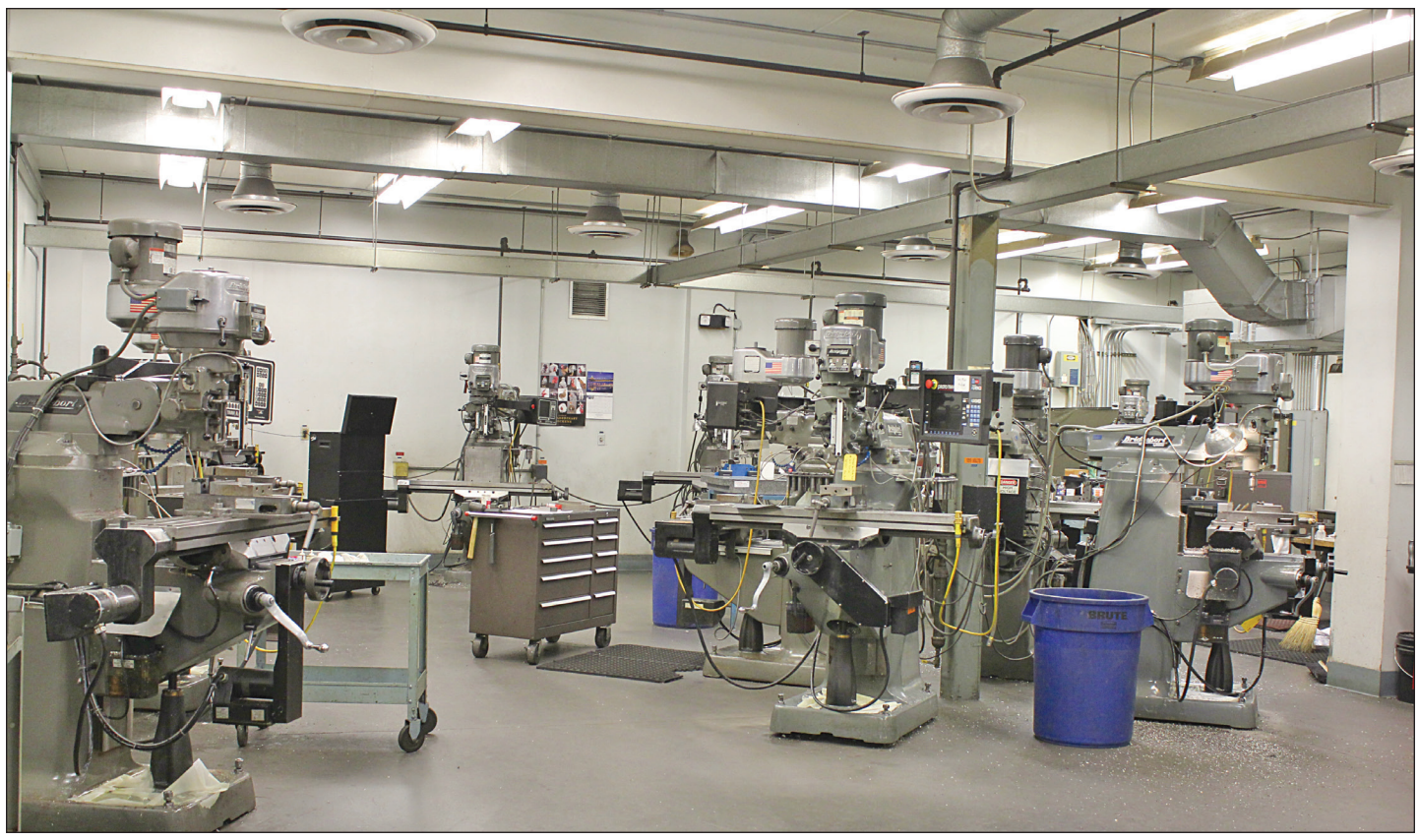

Photo by Velvet Spicer

**Micro Instrument Corp. in Rochester has about a dozen staffers enrolled in the state apprenticeship program.**

"An apprenticeship allows the company to identify an employee that has the comprehension, has the initiative and motivation to be successful in the company," said John Troy, RTMA's apprenticeship coordinator. "This is a way to reward the employee and also reward the company by building a very detailed skillset that directly relates to the company. As the company provides all the on-the-job training, the related instruction is primarily coming from Monroe Community College."

RTMA also has partnered with Tooling University to provide online instruction for apprentices, Troy noted. Apprenticeships will be offered in eight or nine areas including CNC (computer numeric controlled) machinist, toolmaker, quality assurance auditor and others.

"One of the big things with this initiative is these trades that we're offering, making sure they're pertinent to the area and also identifying new trades that companies might need that don't exist," Troy said.

At a fall gathering of manufacturers, the state Department of Labor's Steve DeRenzo noted that in the Rochester region are roughly 1,100 registered apprentices, many of whom are in union construction programs. Most of the machine trades apprenticeships in manufacturing require 8,000 hours of on-the-job training, as well as 144 hours of classroom training.

"The beauty of apprenticeships is you're on the job, you're learning from the old guys, getting your hands dirty," DeRenzo said at the event. "At the same time, you're going to school and learning the math and the science behind the trade, all the theory behind it. Apprenticeships are a tried and true approach and a standard for training individuals."

Micro Instrument Corp. in Rochester has about a dozen staffers enrolled in the state apprenticeship program, and Kyle Jones, who serves as aerospace manufacturing manager for the company, noted that the firm pays the full tuition if the employee earns an A average.

MCC has a rich manufacturing program. Dale Pierce, who serves as trade adjustment assistance community college and career training liaison at MCC's Applied Technologies Center, said the school has a very active advisory board that helps align its offerings and practices with what's going on in the industry. That has led to a number of additions to the various machining programs.

The school's precision tooling certificate is an accelerated, 22-week program designed to prepare students for immediate employment in the industry, while its mechatronics certificate prepares graduates for entry-level positions that involve the operation and maintenance of electromechanical computer-controlled systems commonly found in automated manufacturing environments.

"This was an avenue for us to put more graduates out into the industry and really try to help fill that gap that we're talking about that employers are coming to us for," Pierce said of the accelerated program.

MCC's mechatronics certificate represents the first half of the school's applied integrated technology AAS degree program, and upon completion, students can either enter the job market or transfer their credits toward the degree program.

"One thing that's nice about the associate's degree is we have two separate tracks within that degree," Pierce explained. "The two tracks are traditional machining, which most of our students go in, and an optics track as well. Optics is a really big driver in our industry, especially here in Rochester."

Pierce said the majority of graduates that come out of the MCC certificate and degreed programs have the potential for three to five job offers.

"There are companies out there that would love to put machines on the floor but there's no one to run them," Pierce said. "So the students coming out of our program have a lot of opportunities to really go where they want."

It helps to have employer buy-in, Pierce said.

"That's where the apprenticeships are starting to ramp up," he added. "I can tell you the majority of our night students are working full time during the day and they're fulfilling their related instruction for the Department of Labor at night."

As vice president of MCC's economic development and innovative workforce services division, Todd Oldham oversees all of the programs at the college that involve manufacturing in some way. Through a gap analysis MCC was able to measure the supply and demand for manufacturing employees within the Finger Lakes Region.

The gap analysis showed that, given 602 job openings in advanced manufacturing here each year, roughly 43 percent are being filled with local, newly trained workers. That suggests that in this occupational group, nearly 57 percent of manufacturing-related jobs may go unfilled each year in the region due to an insufficient number of local graduates.

"We need the programs to grow—not just us, but other providers—if we're going to be able to close the gaps," Oldham said of the available manufacturing certificate and degree programs in the region. "We need more people that are willing to consider these occupations because the opportunities are there, the jobs are there—we see that. We don't necessarily have people lining up in groups to go through those programs at the levels you'd expect given the jobs that are available."

Without those individuals, manufacturers will be forced to either make do with what they have, which may mean scaling back production, or look for alternatives such as increased automation, some experts say.

"What does automation mean if we are struggling to fill this many open spots—and nobody has told me yet it's going to get better—knowing this could be an ongoing challenge for us, what can automation and equipment do for us down the road?" asked Jason Hammer, vice president of manufacturing at Hammer Packaging Corp. "Not necessarily to eliminate people, but to allow us to continue to grow and be efficient and reduce costs and service our customers. Is automation potentially a way we need to go in certain parts of the business?"

*vspicer@bridgetowermedia.com / 585-653-4021*