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MANUFACTURING A WINNING PARTNERSHIP

*Iowa Community's Response to Skilled Worker
Shortage Can Serve as National Model*

For Joe Chiaramonte, plant manager with Midwest Metal Products, a precision metal fabrication company based in Cedar Rapids, Iowa, and board member of the Fabricators & Manufacturers Association (FMA), finding qualified labor to work at his facility was a relentless, year-round struggle. The 140-person shop operates three shifts that manufacture products utilizing laser cutting, punching, bending, welding and painting.

“We’ve struggled for years to encourage more people to enter the manufacturing field and to employ more skilled workers at our plant, but we’ve had little success in getting the help we need,” said Chiaramonte. “Of course, we’re not alone; this is a major challenge faced by manufacturers all across America.”

Unable to find enough qualified labor, Chiaramonte was forced to conduct his own training in-house. An 80-hour, two-week class was offered during business hours throughout the year to teach press brake, CNC and turret machine operation. Though the classes did help to some extent, the overall impact was minimal and the time commitment decreased the company’s production capabilities.

Searching for a solution, Chiaramonte approached Phil Thomas, dean of industrial technology at Kirkwood Community College, based in Cedar Rapids, to explain his dilemma. Chiaramonte is an advisory board member for the school.

Kirkwood, a mainstay in Iowa's thriving "Technology Corridor" for 40 years, serves 15,000 credit students in more than 100 career and college-transfer programs. The Industrial Technology Department at Kirkwood offers credit-based coursework toward an associate of applied science degree, and a Continuing Education program develops training for industry through contract and training services.

Thomas and Chiaramonte decided it would be advantageous to pull together a number of local companies and convene an advanced manufacturing conference to address the workforce shortage in the region and brainstorm ways to recruit young adults to come to work in the precision metal fabricating industry. The meeting, held at Kirkwood, included several local manufacturers.

"As we began our discussion, it was quite apparent that there was a need for press brake operators," said Thomas, "but as we continued, we also began to see that there was an emerging need in other areas of fabrication, too."

Fabricating a Plan

At the meeting, it was decided to utilize a two-pronged approach to establish a precision sheet metal fabrication program at Kirkwood -- with the goal of attracting, recruiting and training workers. The first component consisted of developing a short-term press brake training program through the school's Continuing Education program. The second was the establishment of a two-year associate of applied science degree.

Jeff Mitchell, program director for Industrial Technology for Continuing Education at Kirkwood, was charged with developing the training program and Thomas spearheaded the associate of applied science degree in precision sheet metal fabrication.

Funding for the program was another essential component, as this would be vital in launching the program and securing the necessary machinery to complete the fabrication lab. Kirkwood administrators first applied for a U.S. Department of Labor grant. However, despite an initial positive response, it didn't get approved.

School officials then discovered the Grow Value Iowa Funds, a grant created by the Iowa Department of Economic Development. The initiative is a 10-year economic advancement program designed to transform Iowa's economy by creating high quality jobs through business development and expansion across the state. Through this grant, the school was able to fund both the continuing education and credit side initiatives.

"We are very fortunate that advanced manufacturing is one of three areas of technology and economic development deemed a priority by the state of Iowa," said Thomas.

Armed with funding, officials began identifying the fabricating machinery necessary to build a state-of-the-art lab.

Equipment Suppliers Step Up

Though Kirkwood industrial department had machines to teach welding and machining, the school lacked precision sheet metal fabrication machines such as a water jet, brake press or turret press. Adding to the challenge, the amount of funding secured wasn't nearly enough to pay for all of the equipment needed.

Yet, working together, the team pulled through. Utilizing their industry connections, both Chiaramonte and Kirkwood administrators made requests for equipment from suppliers, reaching out to executives at Murata Machinery USA, MC Machinery and Amada.

Cary Teeple, central regional manager for Murata Machinery USA, headquartered in Charlotte, N.C., approved the donation of a CNC Turret Punch Press machine at a substantially reduced price to help get the fabrication programs up and running.

“We really believe in the model program that Kirkwood is putting together and wanted to be a part of something that could possibly better our industry,” said Teeple.

Bill Issac of MC Machinery, a Mitsubishi dealer in Wood Dale, Ill., offered a discounted price on a laser cutter and donated a water jet machine for free: “I applaud their efforts to develop programming that addresses the shortage of trained, skilled workers in the fabrication industry,” he said.

George Kamimura, president of Amada Canada LTD and based in the company’s Granby, QC, Canada office, oversaw the donation of a press brake for the Kirkwood program.

“More than a half-million dollars of equipment came into the school over the last six months,” said Chiaramonte. “That’s an incredible amount of equipment for a community college to receive in such a short timeframe.”

With the donations and equipment discounts pouring in, Kirkwood personnel remodeled the existing machining and CNC program lab in the school’s Jones Hall to

make room for the new machinery. School faculty worked diligently over the summer months to make sure that the equipment was installed and the lab was operational.

“The level of assistance that we received from the equipment vendors was remarkable,” said Thomas. “It has just amazed us the amount of interest and excitement that these programs have created.”

Manufacturing the Curriculum

The set of courses for the two-year associate of applied science degree in precision sheet metal fabrication was developed through a DACUM (developing a curriculum) process. DACUM is a one or two day storyboarding process that provides a picture of what the worker does in terms of duties, tasks, knowledge, skills, traits and tools used. The information is presented in graphic chart form and can include information on critical and frequently performed tasks and the training needs of workers.

“We brought in press brake, laser cutter, water jet and CNC Turret Punch press operators and sat with them for about a day and a half to identify exactly what they do on a daily basis and to identify what is important,” said Thomas. “Through that process we developed a matrix of course objectives to use to develop the program.”

The school also leveraged Chiaramonte’s relationship with the FMA, a professional organization with more than 2,000 members working together to improve the metal forming and fabricating industry. As an FMA board member, Chiaramonte was able to bring the group to the table as a strategic partner to share information in developing the curriculum.

“We had several meetings and conference calls with FMA personnel to share information in putting together the fabrication program,” said Thomas. “FMA also contributed a host of educational materials from its courses and archives to aid in curriculum development.”

Set to begin in the fall of 2008, the advanced manufacturing fabrication degree includes courses in communications, print reading, fabrication math, fabrication practices, human relations, CAD and programming. The two-year program is now certified through the state and the board of trustees at Kirkwood. Students who complete the coursework will receive an associate of applied science degree.

Training Program Making Its Mark

The Continuing Education course teaches basic press brake operation and is currently teaching its third group of individuals. Taught by a Midwest Metal Products employee, the class meets for two hours, twice a week for eight weeks.

“The training program is ideal for new hires or for current press brake operators to brush up on their skills,” said Mitchell. “Additionally, people can take this short-term program so they can become more employable in the field.”

“We’ve already seen a benefit from the short-term classes at Kirkwood,” said Chiaramonte. “We have four new press brake operators that completed the training and are now working at our plant. I can’t wait for the next step with the two-year classes.”

“So far, we hear that our press brake training courses are being very well received by industry,” said Thomas. “We are meeting the important short-term needs of local manufacturers now through apprenticeship and real-time training.”

Kirkwood also hopes to reach prospective students through its outreach to local high schools.

“High school students who take our classes during the school year can earn credit toward both their high school education and toward our two-year fabrication degree,” added Thomas. “Through both the press brake program and advanced fabrication degree, we hope to make a positive impact on the community by training tomorrow’s workforce and introducing young people to manufacturing jobs.”

Kirkwood is now designated as a Certified Education Center (CEC) by the FMA, and these programs will likely place Kirkwood at the epicenter of fabrication efforts on a national stage.

Chiaromonte strongly believes Kirkwood can “serve as a model for how partnerships on a local and regional level can help solve the critical labor shortage throughout the country.”

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