

Solving our critical shortage of machinists

The Manufacturing Extension Partnerships (MEP) of New England have launched an innovative program to develop qualified machinists in through Fast Track training. Called "MOST", for Machine Operator Skills Training, the program was funded by the U.S. Department of Labor and coordinated through the Maine Department of Economic and Community Development. The goal of the MOST program is to train and place 300 machine operators during the pilot phase of the program, which begins the first quarter of 2006. The trainees will be placed in participating job shops throughout the six New England states.

Where have all the machinists gone?

Recent estimates indicate that at the present time some 35,000 positions for skilled

The Supply Point bus has been fitted out as a mobile training lab, to teach M.O.S.T. trainees the basics of CNC work, and existing workers advanced courses such as LEAN 102



machinists are going begging in the United States. Given the loss of more than 3 million manufacturing jobs during the last three years, and the resulting impact on job shops around the country, one would think that there should be plenty of out-of-work or underemployed machinists for these open positions, but the truth is that there is a real shortage of machinists. According to calculations by the NTMA, each skilled position is worth approximately \$120,000 in sales each year to their companies. That means if all these open positions were filled, we could reduce our trade deficit by \$4.2 billion. So, where have all the machinists gone?



Inside the MEP bus' mobile classroom

Unfortunately there is no simple or single answer to this question. Let us just say that machine shops have been quietly experiencing a "perfect storm" of cultural and technological changes, which has endangered their very existence.

According to MassMEP's Ted Bauer, who is the machining project coordinator for MOST, much of the change has been societal. "As a society, we have changed the focus on where our children are going," says Bauer. "Mothers have encouraged their children not to go into factories and shops and everybody goes to college. So the pool of the technical and vocational school students has diminished tremendously. Furthermore, the machine shop industry has not been robust over the past ten years or so, and jobs have been declining, and the feeling on the street is that you don't want to go into manufacturing because all you hear is that they're laying people off."

Although the number of vocational and technical programs in community colleges and technical schools has declined, they are still turning out skilled workers through apprentice and machine technical programs. However they are not making an impact on the shortage of machinists because their

expectations are different from previous generations. According to Ted Bauer, these recent graduates don't want to go onto the shop floor and run machines; they want to do the programming and the process engineering. They say, "I went to school for something, I don't want to be down on the shop floor humping metal all day long."

The next element in our perfect storm of events leading up to the disappearance of a skilled labor force has been the advent of globalization. With the incursion of cheap foreign goods, and industrial parts, the larger

American DEM's began shutting down many of their in-house machine shop operations, and shifting to offshore sources, or laying their machining operations down to smaller shops.

This should have been good for the smaller job shops, but it has been just another problem. There was new business out there to be had, but they couldn't find the employees they needed to do the work. The previous generation's skilled machinists - those who had been laid off -- were retiring or they'd moved on to other lines of work they

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considered more reliable, and as we've seen, we haven't produced enough young people willing or able to work on the shop floor.

What about the rest of the 3 million people in the manufacturing sector who have been laid off in the last few years?

Machine Operator Skills Training

Services Include the Following:

- One on one consultation with MEP Program Managers to assess your specific needs and enroll your company into the program.

- Provide qualified, trained new employees to address your critical employment needs by working with our partners, the state "One Stop Career Centers".

- Train incumbent employees and management in

Phase One: 80 Hours of Classroom and CNC practice

The first phase of the program takes two weeks or 80 hours to complete. During this period, trainees work on both virtual CNC programs and actual CNC machining.

"Best Practices" Lean Manufacturing Techniques.

- In combination with the Center for Supply Chain Integration, assist to integrate your business in supply chains that can lead to an increase in sales.

- Provide and deploy ASP management software to monitor, track performance and to assure process sustainment.

Unfortunately, most of them don't have the specific experience the SMEs are looking for, usually 2-3 years of job shop experience. In other words, they want someone who can step in and do the job right now.

This is beginning to sound like an impossible situation, isn't it? This is why the Machine Operator's Skills Training program was developed in the first place. We can no longer afford to wait for the 3-4 years it used to take to develop a certified machine operator. We need them quickly if we are to keep our job shops intact.

What makes M.O.S.T so different: the non-traditional worker:

Unlike most training programs which tend to require a great deal of class time in community colleges or vocational schools, the MOST program focuses on "non-traditional workers" that, in most cases, have little or no background in manufacturing, let alone machining. These workers are put through a highly focused, very defined Fast Track training program that covers a wide variety of basic shop skills, including: shop math, measuring instruments, quality control, and how to read shop orders: in other words, the fundamentals.

"We have a virtual CNC program that's computer based and CNC machines," says MEP's Ted Bauer. "some tabletop CNC machines: three axis mill, and a turning machine, a lathe - so that we can give them a little of the hands on element. Not a lot, but enough to get them a sense of what it is that they're going to be expected to do. So that's phase one of the training."

Phase Two: 60 Day OJP

Phase two of the program consists of a mentored, 60 day on the job training (OJP) process. After trainees finish their two-week phase one program, they are matched with companies who will not only give them on the job training, but will place them on the payroll from the very first day. The wages paid by the participating companies are their contribution to the matching grant from the U.S. Department of Labor.

Since MOST is a highly structured program, trainees will be measured on how they perform against a set of goals and criteria. Upon the successful completion of the 60-day period, the trainees will be awarded certificates as machine tool operators.

"What we're trying to do throughout this whole sequence is to create a plan - a process

- because processes don't exist right now in small to medium size companies," explains Ted Bauer. "We want to put the trainees on a fast track that will give them the tools and access to the processes that will get them way ahead of the curve compared to how it was done traditionally. Theoretically, we hope to accomplish in two and a half months what it used to take two years of training to do."

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— Ted Bauer, MA. MEP

While providing qualified machine operators is the main thrust of the MOST program, there is another goal which, in many respects, is just as important. The program also trains incumbent workers and management teams in Lean manufacturing techniques - something that many small job shops rarely have the resources to do for themselves. The MOST program has made a commitment to train 750 existing workers during the pilot phase of the program.

Altogether, the MOST program will touch and train just over a thousand workers in the six New England states during the pilot phase of the program. Keep in mind, however, that this pilot is a proof of concept, and a revolutionary one at that. If it works as well as expected, the MEP's Machine Operator Skills Training program will become a vital tool in the re-energizing of America's machine shops.