

Apprentice Training Evolves at TMA

By TMA Staff

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Located in Park Ridge, IL, the manufacturing association offers member companies a range of services and programs. One of TMA's largest and most in-demand training programs is its Related Theory Apprentice Training Program. The program uses new methods to train metalworkers in the 21st century.

At one time, TMA's apprenticeship program had more than 400 students a year. However, the economic downturn in 2008 led to the program's temporary suspension.

"With the downturn in the economy, the training budget was the first thing to go in many companies," said Patrick Osborne, director of education. "Two years ago, nobody was training. Companies were laying people off."

In 2011, the program was revived and revised and two sessions of first year related theory apprentice training are now offered.

TMA is experiencing a renewed interest in the program as metal fabricating, tool and die, mold making and machining facilities are experiencing a resurgence in demand from a recovering manufacturing economy.

“The crown jewel of TMA has always been the Apprenticeship Training program,” said Osborne, “and we’re pleased that the program is coming back strong.”

Jonathan Martinez attended the program from 1998 to 2001, and he’s one of the program’s success stories. Today, Martinez is the operations manager for X-L Engineering Corp. in Niles, IL, a state-of-the-art machining facility serving the medical, aerospace, business equipment and new technologies markets. In addition, Martinez is an instructor in TMA’s revitalized Apprenticeship Training Program.

“I’m glad we’re starting these classes again and that interest in apprenticeship training has picked up,” said Martinez. “Many of the Chicago public schools have cut back their vocational programs in recent decades, and this reduced number of workers skilled in machining practices causes real difficulty now as I look for replacements for people who have left or are retiring from the industry.”

Rich Nielsen, director of engineering for IMS Burke-Olson LLC, based in Arlington Heights, IL, has a long history with TMA. He taught in the Apprenticeship Training program for 10 years and has served on the training committee and the board of directors as well. “Traditionally, the TMA model is that the employer provides the hands-on training and TMA offers the related theory training,” Nielsen explains. “At IMS Burke-Olson, we’ve been training apprentices using TMA Apprenticeship Training for a long time. IMS Burke-Olson has been a TMA member since 1955.”



While TMA has a bench of instructors who have the hands-on experience in what they were teaching, these instructors have also had in-service training with educational professionals who taught them how to teach.

Like Martinez, Nielsen is grateful for the return of the TMA Apprenticeship Training program. “The downturn really hit us between the eyes, and we called it off for a couple of years,” he said. “However, during this time we explored other options of delivering the material and drove our research into the online training movement, and that led us down a path toward some possibilities in the future. Starting this year, as we polled members, we’re expecting the training levels to increase.”

Nielsen concurs that finding skilled employees is a challenge made more difficult by the lack of training during the past few years. “There’s a larger gap than ever in the pool of workers out there,” Nielsen said. “There are still a lot of older people, but we need younger people to enter the trade now so they can take advantage of the knowledge base in our companies of these older workers.”

Helping Employers Hire, Develop Employees with Confidence

Getting started in TMA’s Apprenticeship Training Program requires potential students to complete a WorkKeys job skills assessment, developed by ACT Inc. WorkKeys assesses employee competence in applied mathematics, locating information and reading for information to gauge the participant’s readiness for training.

ACT maintains a database of job profiles to measure a candidate’s skill set against position requirements. The database also can generate custom job profiles that reflect the unique demands of a specific manufacturing company.

After completing the assessments, participants are eligible for a National Career Readiness Certification (NCRC).

“Targeted training makes the most of your training dollars,” Osborne said. “It allows employers to pinpoint specific areas for employee development, producing better results with lower overall costs.”

Developing training programs that fit today's metalworking requirements is critical to the success of new employees and companies. Retiring baby boomers will soon create a shortage of 80 million experienced workers, and a lack of knowledge that comes with experience.

"With younger — and often less qualified — people stepping in to take their place, succession planning in the area of hiring and skills development is more critical than ever," Osborne said.

New Roadmaps for "Top 6" TMA Careers

Another change in TMA's training approach during the past decade includes TMA's Roadmaps for "Top 6" TMA Careers that utilize a blended mix of online and instructor-led training. Students can hone in on skills for specific careers within the metalworking trades. Starting with the New Hire/Basic Skills Training Roadmap, these basic courses are designed to assess the new employee's skills, determine trainability and introduce basic manufacturing concepts and competencies. Courses consist of Safety Practices and Regulations, Mathematics 1, Inspection Techniques 1 (measurement) and Blueprint Reading.

There is a Roadmap for CNC Operator Training, CNC Programmer Training, Die Maker Training, and Mold Maker Training, with each program designed to raise the level of instruction and hands-on training depending on the job requirements. Additionally, there is a Roadmap for Maintenance Technician Training.

Additional New Certificates and Training Development

TMA also offers MSSC Certification Courses that include courses for entry level personnel, apprentices, inspectors and production personnel in Safety Awareness, Manufacturing Processes & Production and Maintenance Awareness. A more extensive course for production personnel, apprentices, inspectors, quality engineers, tool and die makers, CNC machinists, mold makers and front line supervisors is the MSSC Quality Practices & Measurement certification course.

“We’re also in the process of getting NIMS accreditation,” said Osborne. The National Institute for Metalworking Skills (NIMS) is the nation’s only developer of precision manufacturing skill standards and competency assessments accredited by the American National Standard Institute (ANSI). Additionally, NIMS certifies individual skills against standards and accredits programs that meet its quality requirements. NIMS offers a one-year Comprehensive Implementation Program. Announced in January, the program focuses on long-term performance expectations of metalworking training programs, while maximizing the ability to test against NIMS standards by establishing fixed regulatory and testing costs.

“With just a TMA certificate, someone in another part of the country might not be familiar with that program,” he said. “The NIMS credentials offer portability of the training.”

Although not part of their traditional Apprentice Training Program, TMA offers online courses for career development as well. TMA also works closely with community colleges that provide instructor-led training in classes such as MasterCam and CNC Programming Set-up & Operation.

Supporting Hands-on Training

Recently, TMA’s Education Foundation gave the College of DuPage in Glen Ellyn, IL, a \$15,000 grant for its Manufacturing Technology program. Funding will support a portion of the cost to purchase five state-of-the-art Bridgeport vertical milling machines that will be used in basic and advanced machine-shop classes. TMA recognizes that today’s apprentices need to be trained on state-of-the-art equipment to prepare them for the real-world shop environment where high-speed and CNC equipment is the rule rather than the exception in most companies.

“My background is high-speed machining centers, the newer equipment,” said Martinez. “With high-speed 5-6 axis machining centers, we’re putting the focus on the newer equipment with a higher level of complexity. In addition, we are

covering new grades of carbide with specialized coatings to increase tool life which allows for faster speed and feeds. However, we're taking some things from the old apprentice program and implementing new ideas – it's a work in progress.”

Nielsen added that the advantage of TMA's Apprentice Training program is that the instructors are people who actually work in the trade. “The instructors are people in the field and teach in the evening what they do during the day,” he said. “That's always been a great strength of TMA's program versus community colleges where the instructor may not have the experience in what they're teaching.”

While TMA has a bench of instructors who have the hands-on experience in what they were teaching, these instructors have also had in-service training with educational professionals who taught them how to teach. “We train tool and die makers and the educators train us in teaching,” added Nielsen.

The TMA Apprentice Training program is a three-year program that includes varying levels of courses that begin with Industrial Math, Industrial Print reading and Machine Tool Technology. Second-year students focus entirely on Machine Tool Technology with an emphasis on Math and CNC Machining. In the third year, students choose to focus on Basic Die Making, Basic Mold Making or CNC Programming, depending on their interest.

Classroom instruction takes place at TMA's offices, 1177 S. Dee Road, Park Ridge, IL 60068. Classes meet twice a week in the evening each semester. Semesters last for 14 weeks and total 42 hours of instruction.

While three years might seem like a long time, X-L's Martinez said that shorter programs offered in some other trade schools, such as six-month programs, aren't nearly enough to give students what they need.

Additionally, the on-the-job-training that goes hand-in-glove with the formal Apprenticeship Training classes is key. “There’s a lot of tribal knowledge in a shop,” said Martinez, “and that’s why a program like this is so important. I’m excited to get back into teaching in the program.”

Attracting young people at an early age to look forward to careers in metalworking is a goal for TMA. To that end, TMA offers a one-week summer camp program for high school students where they can take the WorkKeys exam and get their NCRC certificate. “They spend a half-day at TMA and a half-day field trip at a member company’s facility,” said Osborne. “We also have an annual machining competition where we send blueprints to high school instructors who work with their students to machine the parts to tight tolerances. We feel that this engages the younger students and get them interested in the metalworking trades.”

For more information on how to join TMA and participate in TMA training, including the Apprenticeship Training program, contact Patrick Osborne at posborne@tmanet.com.