

DEVELOPING SKILLED WORKERS

A Toolkit for Manufacturers on Recruiting and Training a Quality Workforce





For many manufacturers, the skills gap in manufacturing is very real. It may mean passing up a major order because the skilled talent isn't there. Or paying out overtime, or stretching delivery times, because of running short. It may mean the difference between expanding where you are or considering other parts of the country that have more and better training for the technical workforce you need.

Where once strong backs and hard work sufficed, today's manufacturing depends more than ever before on smart minds and an agile workforce. And successful manufacturers are finding that they can't wait for the talent to come to them. There are positive steps every company can take to secure the right talent at the right time.

Whether you are growing your operation, or planning for impending retirements in your workforce, or upskilling in response to automation and productivity improvements, this toolkit is for you. It was designed with the input of small, medium, and large manufacturers and builds off of nearly 10 years of experience in projects that have proven to work.

The heart of this guide is a system of certifications—designed by and for industry, and endorsed by the National Association of Manufacturers. They represent the skills standards that you can stand behind in posting jobs and evaluating applicants. They also empower you to work with colleges and technical schools to make sure that training programs match up to your current and future jobs. In the following pages, you will find steps to take, templates to use, partners to build, and case studies to learn from as you grow your own workforce. A workforce with the work competencies and certifications that will prime you for success.

Just as every company engineers its product line, its supply chain, and its production processes, so can you engineer a talent pipeline. But you don't have to go it alone.

You can start right here.

Sincerely,

A handwritten signature in black ink, reading "Jennifer McNelly". The signature is fluid and cursive.

Jennifer McNelly
President
The Manufacturing Institute

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The Skills Gap

- 74% of manufacturers report that the skills gap has negatively impacted their company's ability to expand operations.
- 69% of manufacturers expect the shortage in skilled production to worsen.

*Deloitte Consulting LLP and the Manufacturing Institute, The Boiling Point? Skills Gap in U.S. Manufacturing, 2011





Skills Certification System

A skilled workforce is the single most critical element of innovation and success, but the hardest asset for manufacturers to acquire. Over 82 percent of manufacturers have reported moderate to serious skills shortages of skilled talent.

These skill shortages pervade all stages of manufacturing—from engineering to skilled production. This challenge will only grow as the demographics of our workforce drive “boomer” retirements, technological advances require higher level of training, and our education system continues to lack a focus on STEM education. Manufacturers need be a part of the solution, offering clear guidance on expectations of performance and delivering a road map for success. The bottom line is that in order to compete in the global marketplace, manufacturers need a skilled talent pipeline.

The Manufacturing Institute launched the NAM-Endorsed Skills Certification System to redefine manufacturing education to an industry standard and address the skills gap challenge across the country. The Skills Certification System was developed by manufacturers, for manufacturers, to help them create a pipeline of workers with high-demand skills.

Manufacturers can no longer afford to wait to educate and train the next generation of manufacturing talent.

The Skills Certification System is a system of industry-based credentials that can apply to all sectors in the manufacturing industry. These credentials validate the skills and competencies needed to be productive and successful in any manufacturing environment. Manufacturers use these skills certifications to match the right candidates with the right jobs and grow the skill sets of their existing workforce.

The certifications are also “stackable”—they build on a foundation of basic academic and workplace skills, such as critical thinking, following instructions, and dependability. From there, workers gain core technical skills, including safety, quality, and maintenance. Finally, workers are certified in specialized, occupationally specific skills, such as welding, machining, and logistics. The sequence is capped with professional certifications offered at the baccalaureate and graduate levels. Embedding industry-based certifications in education pathways provides third-party validation of skills and minimizes hiring risk for employers; increases placement and wage gains for students; and increases the acceptance of credits for

Industry Certifications

Industry certifications are credentials that are based on a third-party assessment, using standards that are set by industry. A certification is different from an education certificate because it is not dependent on a particular education program or curriculum. Whereas a certificate will usually indicate completion of a class or program of study, a certification is an assurance of competency. Certifications can be measured by an industry exam or by a practical performance of a skill (such as welding or machining) that is judged by an independent inspector.

The Manufacturing Institute has endorsed industry certifications that are nationally portable, third-party validated, industry-supported, with data on results for manufacturers. The Skills Certification System consists of industry credentials from the following partners:

ACT
American Society for Quality
American Society of Transportation and Logistics
American Welding Society
Association for Operations Management
Fabricators & Manufacturers Association
International Fluid Power Society
International Society of Automation
Manufacturing Skill Standards Council
National Institute for Metalworking Skills
North American Die Casting Association
Packaging Machinery Manufacturers Institute
Society for Manufacturing Engineers
The Manufacturing Skills Institute

articulation across programs and institutions, enhancing efficiencies of the educational delivery system and promoting student completion. Industry certifications link education and work, ensuring graduates have the skills required for jobs in today's manufacturing economy.

Why Certifications?

The Skills Certification System transforms traditional education pathways by aligning them with the requirements of industry-based certifications. Students earn not only education credentials, but also industry-validated, nationally portable certifications with real value in the marketplace.

When making an investment, all employers consider the return or value to the organization. In a recent study, over 90 percent of companies that use certifications have seen a positive ROI.

Industry certifications validate what workers know and are able to do. They take the guesswork out of hiring and promotion, and help reduce costs and minimize risk.



Benefits of Certifications

Companies have documented significant measurable results when recognizing industry certifications, including:

- **More job-ready candidates:**
Applicants with certifications have demonstrated an ability to be productive faster than those hired without the certifications.
- **Shorter training time:**
Certified workers come to the company ready to work and learn. They have a basic understanding of the manufacturing environment, terminology, and common processes and are ready to apply them in their new environment.
- **Improved safety and quality:**
Manufacturers report fewer accidents and improved safety ratings. Certified workers understand the importance of safety and quality and are sensitive to the critical role in production.
- **Reduced turnover:**
Employers have reported as much as a 50% reduction in turnover resulting from hiring certified workers.
- **Better promotion decisions:**
Certified workers are better candidates for promotion. Some employers use certifications as criteria for employees requesting a promotion or to identify those most qualified for future training.
- **Increased productivity:**
Reduced overtime and scrap rate, additional new business, and an overall increase in production capacity keep production lead times below the industry standard.



Partner with Your Community

If you want...

.....to make sure there are training programs that meet your skill needs but don't have enough openings to fill a class...

Do this...

...join with other manufacturers in your area that have similar skill needs. By jointly calling for specific industry certifications as an outcome of training, you will have a much louder voice in helping to set up or modify training programs.

Change can be difficult—especially with something as fundamental to your business as your recruiting and human resources practices.

You don't have to go it alone. There are many ways you can join with schools, organizations, and companies that may already be doing a lot of what you hope to accomplish.

PARTNERS IN YOUR COMMUNITY

No matter where you are in the process, it makes sense to reach out to community resources and partners. These will vary from state to state, and your own network will depend on your industry sector, the size of your company, your largest skill needs, and the degree of activity already underway in your area.

Consider the following strategies as you build your own successful network:

- 1 Check with the Manufacturers Association, Chamber of Commerce, and Other Business Groups

If you are having a challenge finding the right manufacturing skills, you can be sure other companies like yours have the same challenge. More and more business organizations are dedicating staff and resources to support their members in this critical issue.

- 2 Work with Your Community or Technical College

Most community colleges have a wide range of technical programs in areas as diverse as manufacturing processes and fabrication, welding, automation, and machining. So it makes sense to include one or more community colleges, along with a range of public and private technical providers, as part of a solution. You should start with the M-List, community colleges and technical schools that already have programs that lead to one or more certifications in the Skills Certification System. Find the M-List at: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List.aspx>

Whether they are on the M-List or not, there are proven ways of working with community colleges in ways that work for you and your business. See *Community and Technical Colleges for additional ideas and support*.

There may be other programs, including private institutions, which may be degree-bearing or may offer short-term technical training. They may also be publicly funded and encompass high school students as well as adult learners. Each state has a different system for career and technical education

- 3 Schedule a Meeting with a Local Workforce Investment Board

Workforce Investment Boards, or WIBs, play an important role in funding training to meet regional industry needs, connecting candidates with job openings, and tying workforce initiatives to economic development. Many WIBs, for example, have testing centers for the National Career Readiness Certificate and support a variety of manufacturing training. By law, WIBs must have employers on their board, and they should be eager to treat you as a valued customer. As an employer, you should contact the WIB director or business services executive and discuss your workforce needs. It would be especially productive to identify competencies and the industry certifications that match up to your basic requirements. You should also keep attuned to the priorities of the WIB, give your feedback, and join in ways that support your own pipeline of talent.

4 Contact a Manufacturing Extension Partnership

Manufacturing Extension Partnerships (MEPs) are federally supported, business-oriented organizations dedicated to manufacturing success. MEPs traditionally have helped small businesses find funding, work through regulations, and build a customer network. Most MEPs have also provided training, such as Lean training. Although not all MEPs will be focused on training for workers in manufacturing skills, it is worth contacting your local MEP and finding out what is offered. Even if an MEP won't directly offer training, often the MEP is a hub for active manufacturers and can help you identify resources and likeminded companies.

TURNING A NETWORK INTO A SOLUTION

Once you have scoped out the likely prospects for partners in your region, it is time to take action! There are a number of actions you can take to get to a collective solution.

1 Help to Organize a Workforce Forum

No matter how different your operations are from other companies, chances are you share many key workforce needs. Holding a workforce forum can help to clarify the issues, find other companies interested in growing a talent pipeline, and learn about the range of solutions that can help.

Generally, a forum will work best when it is organized and led by employers like you, and focuses on the needs of industry.

One goal of banding together with your manufacturing peers will be to benchmark the core competencies required across the industry. It is highly appropriate, and often very welcome, to outline the Skills Certification System as an industry-endorsed approach that is working across the country. A sample letter and outreach materials are included in this toolkit.

2 Support a Joint Training Solution

Community colleges and technical schools typically welcome the input of industry in defining their programs of study and deciding on content and standards. In fact, the non-credit program of most colleges often creates customized programs for a single company.

The purpose of a joint solution, however, is to develop consensus across multiple companies behind a course that meets the general needs of the manufacturing industry. Your leadership can make a huge difference in getting like-minded companies together behind skills certification as the outcome of education. Especially for small and medium manufacturers, this is probably the best way to impact community college offerings and get meaningful change in ways that will build the overall pipeline of skilled workers.

3 Establish or Build on a Manufacturing Workforce Organization

There is no substitute for dedicated staffing and resources behind workforce development for manufacturers. That is why several manufacturing associations have built up education foundations or devoted a staff resource to solving the skills gap. Their impact is starting to be felt. Some areas have scholarships for individuals to enter into manufacturing education. Others have supported innovative policies promoting industry certification, or have crafted industry partnerships behind meaningful community college classes.

4 Map out a Pipeline Plan

The most critical step you can take is to develop a plan. Using the resources provided to you in this toolkit, as well as through the previous networking steps, develop a strategic, long-term plan to build relationships and expand your pipeline.



Using Community & Technical Colleges

If you want...

...to build a pipeline of potential candidates with the right skills...

...to help shape the technical offerings and curriculum at your local community college...

Do this...

...talk to community colleges and technical schools about upcoming classes and students' training paths. By volunteering your time to visit the classes, taking on interns, and agreeing to interview students earning certifications, you will have a great chance to build a base of candidates once they finish.

...participate in advisory committees and speak up about the training needed in your industry sector. Become an advocate for the Skills Certification System.

Most community and technical colleges have a wide range of technical programs in areas as diverse as manufacturing processes and fabrication, welding, automation, and machining. As publicly funded institutions, they have been described as a national treasure. But not all community colleges are created equal, so you may need to do your homework to find the best fit in your area.

Your voice can make a difference. As manufacturers, we should expect to influence the kinds of technical programs at the college, and have a say on what constitutes quality. So you should feel fully empowered to call up a community college and get involved.

HOW TO START WITH A COMMUNITY OR TECHNICAL COLLEGE

Of course, you will go to the website and take a look at the technical programs in manufacturing, engineering, and other STEM training. But how can you know if they have solid outcomes and meet your needs?

These are some questions to ask of the college administration or dean of manufacturing programs:

- ? Does the program lead to certifications in the Skills Certification System? If yes, which ones? If not, do you have plans to build certifications into your programs?
- ? How many students earn the certifications?
- ? Who is on your industry advisory committee? How often does it meet? Can I speak with the chair and other industry representatives?

? Are the programs for credit or not-for-credit? In non-credit programs, how can students earn credit for their learning?

Depending on the answers, you will get a sense of how to form a partnership or to step up your work with the college. Here are some important ways manufacturers can work with colleges, remembering that a true partnership means there are benefits on both sides:

- Join the industry advisory council or other body advising academic programs
- Share a job analysis of your key recruitment needs, including the competencies and industry certifications you value or require
- Set up a formal process for student internships
- Agree to interview students who earn your preferred industry certifications
- Arrange interactions with students, which may include tours at your plant, or speaking to a class about opportunities in manufacturing and at your company
- Volunteer for extracurricular activities, like SkillsUSA and FIRST Robotics teams

FIRST STEPS TO TAKE WITH YOUR COMMUNITY OR TECHNICAL COLLEGE

1 The M-List: Your “Crib Sheet” to Finding Quality Programs

There are so many academic programs out there that it can be hard to figure out where to start. That is one reason why The Manufacturing Institute publishes the M-List of schools that are teaching up to industry standards and provide access to manufacturing certifications.

How does your area stack up? Find the M-List at: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List/M-List.aspx>

There, you will discover not only which schools offer quality manufacturing programs, but you will also find which certifications they offer, a description of their degree programs, and a list of contacts you can call.

2 Understand the College

Community colleges generally have two separate functions—for credit and non-credit programs—and it is important to recognize which entity you are dealing with and where you can best find success.

Academic programs offer credit and formal credentials, such as associate's degrees and one-year certificates. Some advantages of working with the academic college are:

- The chance for students to attain an associate's degree or other college credential
- Greater ability for students to use financial aid, GI Bill, and other financial supports

Non-credit offerings, often in what is known as the “corporate college,” are typically shorter, industry-specific training programs. Some advantages of working with the corporate college are:

- Usually more nimble to create new courses and curriculum
- Can often be customized for a single industry sector or employer
- May be a good choice for your incumbent workers

The Manufacturing Institute believes that it is in the best interest of companies and students for manufacturing programs to lead to college credit and industry certifications. This is also the best



way to make sure as many students as possible can enter into technical programs and build a career based on lifelong learning.

3 Set an Objective and Push for Results

Just like other institutions, community and technical colleges should be responsive to their community. Moreover, as an employer you should have a privileged place in ensuring that students at the college get jobs. It will help if you are very clear in your objectives and stick to it in achieving results. So in working with the college, make clear you are interested in technical training that leads to industry certifications—those that make up the Skills Certification System.

This cannot be a one-way street, however. You should be able to offer one or more of the following:

- Agree to interview students completing training
- Recognize the certifications in your interview and hiring processes
- Join an industry advisory group or otherwise give feedback on needed skills
- Donate equipment that may help modernize a program

4 Connect with the President and Dean

The president and/or dean of the college can be a great ally in getting new training programs set up in a timely manner. They can also assist you in developing other programs, including internships and apprenticeships.

Build Your Own

If you want...

...to measure baseline academic skills in Applied Math, Reading for Information (like a technical manual), and Locating Information (like on a spreadsheet)...

...to signal the competencies you are looking for in your technical workforce to job applicants, incumbent workers, and educators...

Do this...

...consider using the WorkKeys Assessments associated with the National Career Readiness Certificate (NCRC) to assess applied math and reading levels.

...identify which of the certifications in the Skills Certification System is a “match” for job openings or promotions. Add language to the job posting that the certification is “preferred” or “required.”

Your business has many ways to apply the Skills Certification System in ways that grow your pipeline of skilled workers and develops your own workforce. Here are some proven approaches that can make a difference for your business—in the short-term and for the long haul.

MODERNIZE YOUR RECRUITING AND HIRING PRACTICES

Your human resources policies can be your biggest help—or your biggest hindrance—in finding new sources of talent. If you are having trouble filling important positions, you should look closely at your policies and procedures.

Some areas to consider:

? Are required years of experience truly on target?

Some companies have found that policies based on competencies are a better judge of an applicant's potential. Policies that recognize, prefer, or require industry certifications give you better control over measures proving what candidates can do, not just time spent on the job or in the classroom. Sample job descriptions are included in this toolkit.

? Are you giving opportunity to veterans?

If you require years of experience, or a certain degree, consider whether military training and experience could be a substitute. The Manufacturing Institute has matched 11 key manufacturing occupations with military specialties. Get Skills to Work can help you fill open positions with qualified workers, while supporting veterans. Visit www.GetSkillstoWork.org for more information.

? Can your workflow and job categories be adjusted to allow for different skill levels?

Some companies have found that there were not enough experienced, skilled workers around to fill needed positions. So they analyzed their processes and found that the work could be rebalanced; for a year, new employees could work on just lower-skilled work as they got up to speed and learned higher-level processes.



BUILD PATHWAYS FOR YOUR INCUMBENT WORKERS

All companies train. In fact, according to studies, most technical training takes place on the job, rather than in technical schools or community colleges. How well you use that training—and how employees perceive that training and see chances to grow and advance—may determine how well you retain your workers and stay nimble in a constantly changing competitive environment.

Here are some ways to grow your own talent and recognize your high performers:

1 Conduct a Job Task Analysis of Key Positions

No matter how you choose to build your talent pipeline, you will want to start with hard data that breaks down your skill needs and looks at your most important talent gaps. You can do this on your own, work with a consultant, or engage an assessment organization (such as ACT) to conduct a thorough analysis.

2 Match Needed Competencies to Industry Certifications

The Skills Certification System is a manufacturers-approved series of credentials that take the guesswork out of measuring skill levels of your employees. Once you have completed the job task analysis, you are in position to select the certifications that match up. Then you can include those certifications in your formal on-the-job training, or you can incentivize workers who choose to earn certifications online or at a community college or technical school. There is a range of curriculum available for each of the certifications.

3 Start (or Expand) Mentorship Programs

Mentorships have proven to work for a variety of situations in improving retention and maximizing productivity. Many manufacturers have formal mentorships for management and professional tracks, but they can be just as effective for front-line workers who also play a critical role in the success of your day-to-day operations. Affinity groups or mentorships are also growing for veterans, women, and other underrepresented populations.

4 Address the “Demographic Cliff” through Knowledge Transfer

Many companies see tremendous stores of knowledge and experience walk out the door through retirements—a trend that is expected to accelerate as the Baby Boom generation



retires in greater numbers. One successful response is to support pairing experienced workers with younger workers and proactively working on transferring knowledge. Companies are also experimenting with means to keep workers longer, including supporting more flexible part-time work without impacting pensions and benefits.

5 Put in Place a Structured On-The-Job Training Program

Every company, of course, conducts training. A structured training program typically mixes coursework and training on the floor, with a tightly controlled sequence, content, and trainers. One form of structured on-the-job training is apprenticeship. An apprenticeship lays out a formal path for advancement (based on time and competencies), tracks milestones and learning, and uses the progress in awarding promotions and bonuses.

6 Expand Training In-House or with an External Resource such as a Community and Technical College

The skills gap is real and affects virtually every advanced manufacturing company. That fact can control you—impacting everything from your productivity to your overtime to your ability to take on new orders. Or you can control your own destiny and grow your own talent. Be among the industry pioneers that are building the credentialed workforce of the 21st century!



Frequently Asked Questions

? Why would I want to use the Skills Certification System (SCS)?

For Hiring: Employers have found that the certifications improve the hiring process by validating skill levels, cutting costs, and minimizing risk.

For Current Employees: Employers are using the SCS with current workers to validate common skill levels, build new skills, and implement improvement strategies such as lean and value stream mapping.

? How can the SCS help me fill skilled positions in my company? Job ads result in 50 to 150 applications yet I still can't find the right candidates.

Certifications help to take the guesswork out of the selection process. Once the skills required for a specific position are matched to a skill certification, an employer can request that as part of the application process. A certification validates the skill level.

Rather than relying strictly on a resume and an interview, candidates that present a certification give the employer some assurance that the person can do the job. Employers can then focus on the other traits that are important to the company and the culture.

Once you match an SCS certification to the skills required in a particular job, you can list that certification as a preferred qualification for applicants. The certification validates that the individual has the skills needed for the position. Then in the interview process you can focus on other issues related to the position, the company and the culture. Benchmarking against high performing incumbent workers offers another piece of data that will help in the selection process.

? I need to hire entry-level workers who can quickly become productive and also be candidates for promotion. Many new hires can perform entry-level positions but can't learn new tasks and advance.

The use of the National Career Readiness Certificate (NCRC) and the Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) can be an efficient way to select workers who can more quickly contribute to the bottom line. These workers are typically also good candidates for promotion.

Using these certifications as preferred qualifications for job seekers results in a better pool of candidates.

? How do I match the certification with the job opening?

Identify the skill requirements for the position and match to the standards measured in the various certifications. Review the Certification Partners handout for guidance. Ask your supervisors and/or lead staff in the specific area for input. Consider assessing some of the highest performing incumbent workers. Many education providers offer assistance in matching the skills required with a certification that will determine an individual's level. They can also administer the assessments and provide training leading to the certification.

? How do I find candidates with these certifications?

Partnerships with local community colleges can be a source of certificated workers. Certification sponsors can provide detailed information on local testing centers and may share information on certified workers in your area. Some employers establish learning and assessment centers on-site for selection or promotion purposes.

See Sample Job Descriptions for guidance on how to list the certification as a preferred qualification in a job posting.

? Are the SCS certifications better than our company-developed test that we have been using already?

Using a nationally recognized and validated system gives you a sense of confidence not only in the individual candidate but also in the skill level of your entire workforce. The SCS certifications help to ensure that applicants' skills match your needs.

? I need to improve the skills of my current employees to prepare for production changes. How can the SCS help?

Once you have identified the knowledge and skill required and matched to the standards measured in the certification, you can assess your current workers to get an objective baseline measure of their skills.

Online training may be offered at the plant or through courses, workshops, and labs through a local community college. Courses can be offered either at the college or at the plant. After they complete training, individuals can be re-assessed to validate they have the skills necessary and to attain the certification.

? How does the National Career Readiness Certificate (NCRC) relate to the skills required in advanced manufacturing positions? It seems so general and not related specifically to jobs in my company.

Employers have found that the NCRC not only validates the candidate's basic academic knowledge, but also the ability to apply that knowledge in workplace situations. Once the NCRC level is identified, employers can look for candidates with that level. It becomes one objective criterion that will lead to a stronger candidate pool for interviews and background checks.

? Are there legal issues with using the SCS for selection or promotion?

Information regarding the validity and reliability of various certifications is available from the vendor. Any selection tool must be used appropriately and as designed. Many companies find they may "recognize" or "prefer" certification as opposed to setting a requirement.

Specific questions should be discussed with the vendor and your company's legal counsel.

? What will this cost my company?

Each certification partner has fees associated with its certifications. Find out more by emailing the contacts listed for each certifying partner.



Certification Partners

The Skills Certification System currently includes 15 certification sponsors that provide industry standards and assessments, spanning the entire occupational pathway from entry-level workers to engineers. Outlined below is a snapshot of each partner. Each industry sponsor's website contains extensive information about standards, certifications, assessments, and costs.

ACADEMIC AND CORE TECHNICAL SKILLS



At the foundation of the skills system is the ACT National Career Readiness Certificate (NCRC). The NCRC is an industry-recognized, portable credential that demonstrates achievement and a certain level of applied academic and employability skills for workplace success. Individuals may earn the NCRC by taking three WorkKeys® assessments: Applied Mathematics, Reading for Information, and Locating Information.

For more information, please contact Terry Ausman at terry.ausman@act.org



Manufacturing Skill Standards Council (MSSC) assessment and certification system is focused on the core technical knowledge and skills needed by front-line production workers. MSSC offers the Certified Production Technician (CPT), which consists of four modules: Safety; Quality Practices and Measurement; Manufacturing Processes and Production; and Maintenance Awareness. MSSC is accredited by the American National Standards Institute (ANSI) under ISO Standard 17024.

Manufacturing Skill Standards Council (MSSC) Certified Logistics Technician Certification (CLT) is the industry-recognized national certification for the core technical skills of front-line workers (entry level through first line of supervision) involved in the handling and distribution of materials throughout the supply chain and logistics industry.

For more information, please contact Neil Reddy at reddyn@msscusa.org



The Manufacturing Skills Institute offers the Manufacturing Technician 1 (MT1) certification, developed to meet the growing employment demands of the manufacturing industry. The MT1 certification addresses the core industry-wide skills standards required for skilled production occupations in all sectors of manufacturing. The core competency areas certified are: (1) Math and Measurement, (2) Spatial Reasoning and Manufacturing Technology, and (3) Business Acumen and Quality.

For more information, please contact Katherine DeRosear at kderosear@manufacturingskillsinstitute.org.

OCCUPATION-SPECIFIC SKILLS



American Society for Quality (ASQ) is the worldwide leader in providing credentials to the global quality community. The Society currently offers 16 different certifications including Quality Technician, Quality Inspector, and Quality Engineer. More than 170,000 certifications have been issued to dedicated professionals worldwide.

For more information, please contact Sally Harthun at sharthun@asq.org



American Society of Transportation and Logistics (AST&L) facilitates education and certification in the fields of transportation, logistics, and supply chain management. It provides globally-recognized credentials such as the Professional Designation in Logistics and Supply Chain Management (PLS) and the Certified in Transportation and Logistics (CTL) designation.

For more information, please contact Laurie Denham at ldenham@astl.org



Association for Operations Management (APICS) is the global leader and premier source of the body of knowledge in supply chain and operations management. The APICS Certified in Production and Inventory Management (CPIM) and APICS Certified Supply Chain Professional (CSCP) designations are recognized globally for setting the standard of professional excellence in the industry.

For more information, please contact Lisa Sallstrom at lsallstrom@apics.org



American Welding Society (AWS) is the nation's premier entity for welding certification and has a robust collection of certification documents on its website. A few suggested links include the standards for the Certified Welders and the Body of Knowledge for the Certified Welding Inspector, 2 critical positions for many manufacturers.

For more information, please contact Monica Pfarr at mpfarr@aws.org



Fabricators & Manufacturers Association, International (FMA) Precision Sheet Metal Operator Certification (PSMO) is the metal fabricating industry's only comprehensive exam designed to assess a candidate's knowledge of fundamental precision sheet metal operations. Fabrication processes covered in the exam include shearing, sawing, press brake, and more.

For more information, please contact Cindy Day at cindyday@fmanet.org



International Fluid Power Society (IFPS) is the only organization that provides comprehensive technical certification in the fluid power and motion control industry. Numerous certifications are currently offered, such as Fluid Power Certified Technician and Fluid Power Electronic Controls.

For more information, please contact Donna Pollander at dpollander@ifps.org



International Society of Automation (ISA) is a global nonprofit organization setting the standard for automation by helping over 30,000 worldwide members solve difficult technical problems. ISA's Certified Control Systems Technician (CCST) and Certified Automation Professional (CAP) certifications are key elements of the Skills Certification System.

For more information, please contact Dalton Wilson at dwilson@isa.org



National Center for Construction Education and Research (NCCER) is recognized as one of the premier workforce development organizations for the construction and maintenance industry. The NCCER training and certification system offers more than 80 different assessments in over 60 different craft areas.

For more information, please call (386) 518-6500.



National Institute for Metalworking Skills (NIMS) is the only ANSI-accredited developer of precision manufacturing skill standards and competency assessments in the nation. NIMS has developed skill standards in 24 operational areas covering the breadth of metalworking operations, with 52 distinct skills certifications. NIMS certifications cover a range of machining specialties, including CNC programming and operation.

For more information, please contact Jim Wall at JimWall@nims-skills.org



North American Die Casting Association (NADCA) requires candidates to pass the specified examinations and fulfill the minimum apprenticeship period to become certified. The Certification Program has several levels ranging from Die Casting Technician to Master of Die Casting Technology.

For more information, please contact Melisa Ryzner at mryzner@diecasting.org



PMMI members manufacture packaging and packaging- related converting machinery. The PMMI Mechatronics Certificate Program and the PMMI Certified Trainer Program are among the most popular.

For more information, please contact Stephan Girard at sgirard@pmmi.org



Society for Manufacturing Engineers (SME) partners with three organizations to offer Lean Certification: the Association for Manufacturing Excellence (AME), The Shingo Prize for Operational Excellence, and the American Society for Quality (ASQ). The certification aligns these leading organizations to a single standard for the industry.

Society of Manufacturing Engineers (SME) offers the Certified Manufacturing Technologist, which focuses on the fundamentals of manufacturing and is acquired through a baccalaureate program or a combination of four years academic and work experience. The Certified Manufacturing Engineer is focused on applied and advanced manufacturing knowledge and may be acquired through a combination of eight years of work experience and a manufacturing or engineering degree.

For more information, please contact Pam Hurt at phurt@sme.org

Sample Press Release

PRESS RELEASE

For Immediate Release

Title

Sub-title

CITY, STATE, DATE: Continuing its commitment to increase and promote the skills of its employees, COMPANY today announced the use of certifications, specifically, the TYPE OF certification. COMPANY will begin using these certifications in collaboration with the NAM-Endorsed Skills Certification System.

With more than 80% of manufacturers reporting a shortage in skilled workers, the Skills Certification System is the right step to finding qualified workers. This system of industry-recognized credentials validates both the “book smarts” and the “street smarts” needed to be productive and successful on the job.

The certification, awarded by XXX, allows COMPANY to engage with workers who possess the theoretical knowledge and practical experience that is necessary have a successful career in INDUSTRY.

“We are delighted to join with The Manufacturing Institute in this new initiative, which will allow us to respond to the demands for more training from our RECRUITMENT SPECIALISTS/EMPLOYEES,” said NAME, TITLE, COMPANY. “The training we provide is aimed at increasing the capacity of EMPLOYEES to...”

To become certified, an applicant must ...

###

About Company

Brief description of company. For more information, please visit www.companywebsite.com.



Download the Sample
Press Release Here



Sample Job Descriptions

ENTRY-LEVEL JOB POSTING

Job Title: Job Title
Company Name: The Manufacturing Company
Contact Person: HR Manager
Business Phone: (xxx) xxx-xxxx
City: City
State: State
Website URL: www.companywebsite.com
Qualifications: 3 years minimum experience of XXX. Motivated, handles fast pace, and proud of their work.
1
Job Description: Company is expanding to a larger location and this move will allow continued growth while exceeding our customers' needs. We seek entry-level technicians who are looking for new challenges, opportunities, and career advancement to join our expanding business. Company is a precision machine shop with a clean, climate controlled environment. First and second shift positions are available.
Email Address: hrmanager@company.com
Credentials: Applicants will be required to complete the National Career Readiness Certificate (NCRC). A silver level is preferred.

WELDER

Job Description: Ability to perform the following:

- Weld plate and tube steel.
- Deep penetration on welding on pile driving rig.
- Work with pile driving crew.
- Comply with proper safety procedures.

Requirements:

- Ability to exert physical effort, handling avg weight objects up to 80 pounds.
- Ability to correctly rig and hoist material.
- Ability to signal, rig & work safely with cranes.
- Understand different types of welds.
- Certified welder with AWS D1.5 and minimum of three years experience.

CNC MACHINIST

Responsibilities include: plan machining by studying work orders, blueprints, engineering plans, materials, specifications, orthographic drawings, reference planes, locations of surfaces, and machining parameters; interpreting geometric dimensions and tolerances (GD&T); checking stock to determine amount available; program mills and lathes by entering instructions, including zero and reference points; setting tool registers, offsets, compensation, and conditional switches; calculating requirements, including basic math, geometry, and trigonometry; proving part programs; verify settings by measuring positions, first-run part, and sample workpieces; adhering to international standards.

Skills/Qualifications: Conceptual Skills, Process Improvement, Functional and Technical Skills, Controls and Instrumentation, Supply Management, Tooling. Special consideration will be given to applicants with NIMS Level 1 certification.



Sample Invitation

DATE

NAME

TITLE

COMPANY

ADDRESS

ADDRESS

Dear SUPPLIER/COLLEGE,

At a time when productivity and meeting the bottom line are critical to business success, employing a highly skilled and educated workforce can mean the difference between a good investment and a high risk. As part of our initiative to develop a skilled workforce, COMPANY will be undertaking a program of change affecting the way it recruits and hires new workers, and is gathering local representatives from manufacturing and technical college to explore the development of industry-based certifications.

Working with The Manufacturing Institute, we have begun using the NAM-Endorsed Skills Certification System. COMPANY is using skills certifications to validate the skills and competencies of incoming workers, and also to upgrade the skills of our current employees. We've found that adding the preferred certifications to our job descriptions has resulted in an increase in qualified interviewees.

COMPANY would like to invite you to participate in a FORUM/ROUNDTABLE to explore the use of the Skills Certification System in COMMUNITY. We are brining together local manufacturers and educators to explore the use and development of industry-based certifications

COMPANY encourages you to consider attending our FORUM. If you are interested, please contact NAME, TITLE. HIS/HER telephone number is NUMBER and his email is EMAIL.

I hope you will be able to attend.

Sincerely,
Name



Download the
Sample Invitation Here

Sample Agenda

CITY MANUFACTURING ROUNDTABLE

MONTH, DATE, YEAR

Location
Address
Phone

WELCOME AND INTRODUCTIONS

Host
Title
Company

SETTING THE STAGE: MFG IN CITY
DEFINE SHORTAGES
DEFINE COMMON SKILL NEEDS

Executive
Title
Company

SKILLS CERTIFICATION SYSTEM
CHOOSING CERTIFICATIONS TO FILL THE NEEDS

Executive
Title
Company

BEST PRACTICES DISCUSSION

Executive
Title
Company

DEVELOPING AN ACTION PLAN

Executive
Title
Company

NEXT STEPS IN CITY



Download the
Sample Agenda Here

Sample Outreach Poster

LOOKING FOR A PROMOTION?



Build your OWN future...

GET CERTIFIED NOW AND ADVANCE YOUR CAREER!

[Your Company Name Here]

[Logo Here]

[Description and Text Here]

[Description and Text Here]

[Description and Text Here]

PLEASE SEE [NAME Here] FOR MORE INFO.



To use NAM-Endorsed Certifications at your company,
visit www.themanufacturinginstitute.org, or contact institute@nam.org.



Download the Sample
Outreach Poster Here

POWERPOINT PRESENTATION



The Manufacturing Institute's PowerPoint presentation, as well as employer spotlights, and the samples found in this toolkit, including press release, invitation and agenda are available for customization.

For access to these and more, please visit:

<http://www.themanufacturinginstitute.org/Skills-Certification/Employers/Employers.aspx>.



Competency Model

Advanced Manufacturing Competency Model

The Skills Certification System is grounded in the Advanced Manufacturing Competency Model. The model, built by manufacturers, for manufacturers, and in partnership with the Department of Labor, serves as a roadmap of the skills needed by workers entering and then advancing in careers across the manufacturing economy.



Occupation-Related: High-demand occupations are matched with critical industry certifications in such areas as machining, welding, fabrication, automation, fluid power, mechatronics, transportation/distribution, and logistics. At the top of the model are managerial and specialty occupations, including engineering.

Core Technical: Core technical skills that impact the bottom line include: safety, quality and measurement, maintenance installation and repair, production, and sustainable manufacturing.

Foundational: Basic skills that cut across all sectors in manufacturing include:

- >> **Workplace competencies:** Do workers use critical thinking skills, work in teams, and have problem solving skills?
- >> **Basic applied skills in reading, writing, math, and locating information:** Can workers communicate effectively, follow key instructions, and read manuals?
- >> **Personal effectiveness:** Will prospective employees show up on time, be dependable, and demonstrate initiative?

The Advanced Manufacturing Competency Model was developed because manufacturers recognized the need to agree on a common understanding of the entry- and technician-level skills required to be competitive in the global marketplace.

The framework does not replace or duplicate existing skill standards, but rather represents the core skills needed across the board for high-performance workers in today's advanced manufacturing environment.

To view manufacturing competencies, visit: www.careeronestop.org/competencymodel

There are numerous organizations in your own backyard that may provide you with additional resources as you pursue the use of certifications. So what's next? While each of these organizations varies by state and region, they will provide you with excellent guidance and leadership to ensure the development of a qualified talent pipeline.

Apprenticeship Office

Apprenticeships are an alternative model to provide technical instruction with on-the-job training, resulting in an individual gaining the academic skills and garnering the hands-on professional experience to be better prepared.

Visit: <http://www.doleta.gov/OA/apprenticeship.cfm>

Certification Partners

The Manufacturing Institute is working with manufacturing certification organizations that are the world market leaders in skills certification programs. This collaborative effort resulted in an organization of the certification programs, and the credentials they offer, into a system of "stackable credentials" that can be awarded in post-secondary education.

Visit: <http://www.themanufacturinginstitute.org/Skills-Certification/Certifications/NAM-Endorsed-Certifications.aspx>

Community Colleges

Partnering with your community college is a key step in building a successful future for your company by supporting programs that teach to industry standards. The American Association of Community Colleges (AACC) can help you locate community colleges in your area.

Visit: <http://www.aacc.nche.edu/pages/ccfinder.aspx>

Manufacturing Extension Partnership

Manufacturing Extension Partnership (MEP) works with small and mid-sized U.S. manufacturers. The nationwide network has a location in every state, and provides a variety of services to businesses. MEP also works with partners at the state and federal levels on programs that benefit and promote manufacturers.

Visit: <http://www.nist.gov/mep/find-your-local-center.cfm>

The M-List

The Manufacturing Institute's M-List recognizes high schools, community colleges, technical schools, and universities that are teaching manufacturing students to industry standards. Specifically, these schools offer students the opportunity to earn NAM-Endorsed Manufacturing Skills Certifications as a standard part of their manufacturing education programs.

Visit: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List/M-List.aspx>

The Manufacturing Institute

The Manufacturing Institute is the authority on the attraction, qualification and development of world-class manufacturing talent. The Manufacturing Institute offers a variety of resources including research, promotional materials, webinar series, and expertise to support manufacturers in their quest to develop a qualified talent pipeline.

Visit: www.themanufacturinginstitute.org

O*NET

The O*NET program is the nation's primary source of occupational information. Central to the project is the O*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers from each occupation. Information from this database forms the heart of O*NET OnLine, an interactive application for exploring and searching occupations. Companies use O*NET in countless ways, such as matching competencies to job profiles, learning about related jobs and expected growth of occupations, and benchmarking pay scales.

Visit: www.onetonline.org

Workforce Investment Boards

Workforce Investment Boards (WIBs) are present in every community in the nation. The WIBs' main role is to direct federal, state and local funding to workforce development programs. WIBs conduct and publish research on these programs and the needs of their regional economy and oversee One-Stop Career Centers.

Visit: <http://www.servicelocator.org/wibcontacts/>

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