
Competency Models In Action:

Manufacturing Program Aligns Pre-Apprenticeship Training with Industry-Recognized Credentials

January 2016

- Addressing critical regional manufacturing industry sector workforce needs
- Working with manufacturing employers to incorporate the competencies they need in pre-apprenticeship training programs
- Providing career coaching to compliment entry-level machining training for targeted populations

Introduction

In 1997, regional manufacturers in southwestern Pennsylvania identified a critical shortage of entry-level machinists and other manufacturing workers. A group consisting of representatives from Steel Center Area Vocational-Technical School, the Institute for Economic Transformation at Duquesne University and executives representing 17 manufacturers partnered to create MANUFACTURING 2000 (M2K).¹

The M2K entry-level machining program, administered by the non-profit organization, New Century Careers (NCC), is a pre-employment/pre-apprenticeship program that recruits unemployed, underemployed, and low-income individuals in southwestern Pennsylvania. It provides hands-on machining training in collaboration with industry in addition to instruction in technical math, machine theory, blueprint reading and metrology. Skills are verified through National Institute for Metal Working Skills standards and credentials.²

M2K was cited as an exemplary regional partnership in Vice President Biden's report "Ready to Work: Job-Driven Training and American Opportunity." The program emphasizes active career coaching by program staff. This approach enables participants, who often face multiple barriers, to progress along a career pathway to meaningful occupations in the manufacturing industry.

Workforce Need

"Manufacturing is the third largest private sector employer in the region and the second largest in terms of economic impact," says Paul Anselmo, President, NCC. "Our manufacturing workforce is aging and it is critical to our regional economy that we prepare a new generation of skilled workers to replace them. Working with a large cohort of manufacturers in our region enables us to learn firsthand about their workforce needs and respond to their concerns."

¹ New Century Careers, <http://www.ncsquared.com>.

² Ready to Work: Job Driven Training and American Opportunity, July 2014, https://obamawhitehouse.archives.gov/sites/default/files/docs/skills_report.pdf

According to the Bureau of Labor Statistics, the outlook for manufacturing-related occupations is strong, particularly as one progresses in a manufacturing career pathway. Although national data indicates that employment opportunities for machinists, which had median pay of \$40,910 per year in 2012, will increase by only seven percent between 2012-2022, less than the 10.8% average for all occupations, the outlook for more advanced manufacturing occupations as one progresses along a career pathway is much more positive. For example, national data indicates that employment opportunities for logisticians, which had median pay of \$72,780 per year in 2012, will increase by 22% between 2012 and 2022, more than twice the national average for all occupations.³

Approach

M2K is pre-employment/pre-apprenticeship training. As such, there is no manufacturing employment or payment during the initial training period. Some trainees continue to work part- or full-time at unskilled jobs while in training. M2K students learn the basics of machine theory and practice on lathes, drill presses, milling machines, surface grinders, CNC programming and applied math and blueprint theory. The program consists of both classroom and hands-on experience as well as special sessions focused on professional development and resume writing.⁴

“We spend a lot of time identifying people who want to take the first step in a manufacturing career pathway,” Says Mr. Anselmo. “Machinists are problem solvers in everything that they do. They tend to become company leaders down the road. NCC utilizes an industry-informed screening process to determine whether pre-apprentices have the attributes, such as an aptitude for math, to progress along a manufacturing career pathway.”

³ Bureau of Labor Statistics, Occupational Outlook Handbook, 2014-2015 Edition

⁴ New Century Careers, <http://www.ncsquared.com>.

MANUFACTURING CAREER PATHWAY

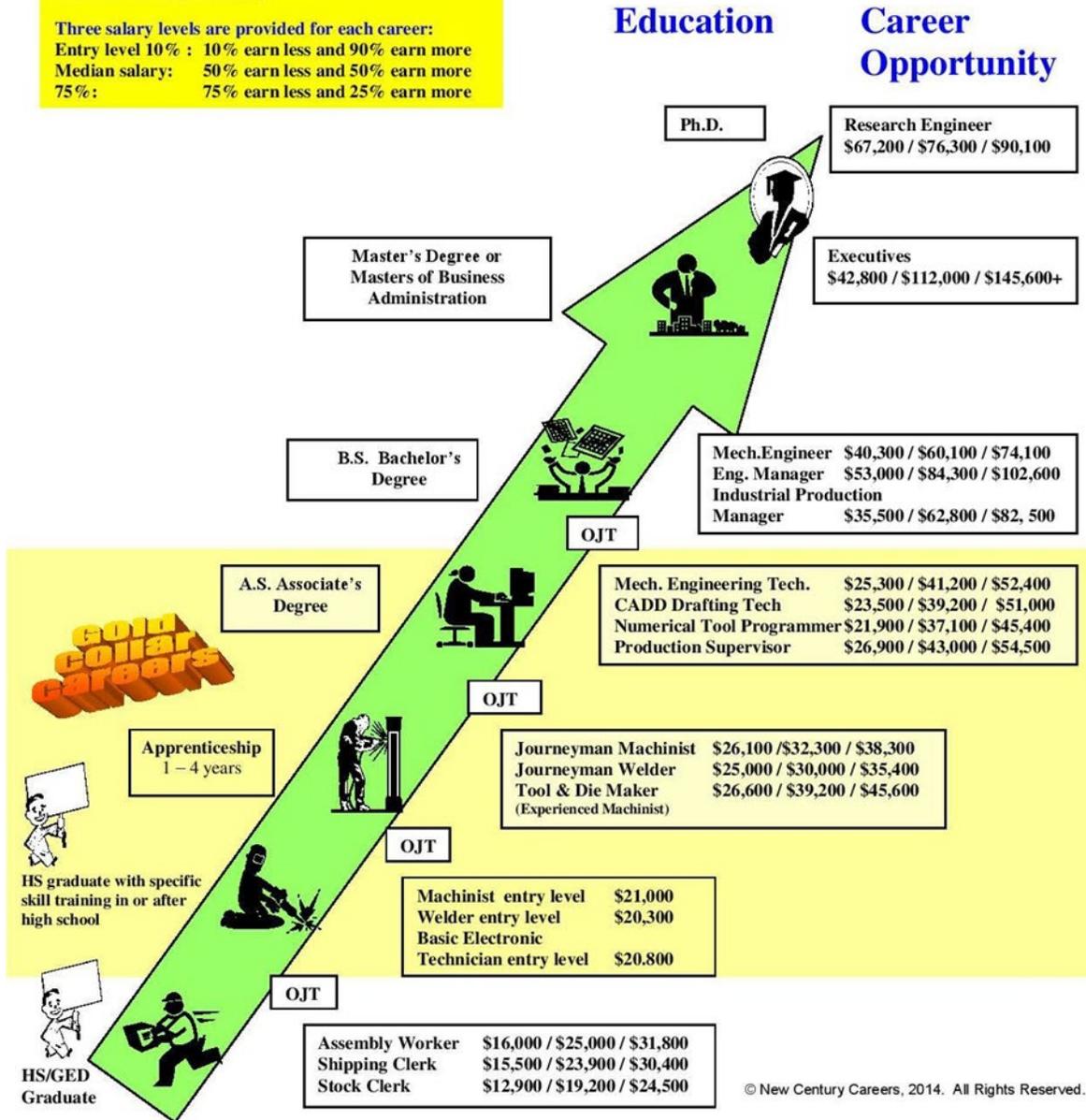
The pathway shows multiple opportunities for work, additional education and On-The-Job Training (OJT). Your individual pathway may vary greatly as you take advantage of everyday work experience, On-The-Job Training and new educational and job opportunities.

Your full commitment is needed to make any career pathway successful!

PATHWAY LEGEND:

OJT: On-the-Job Training

Three salary levels are provided for each career:
 Entry level 10% : 10% earn less and 90% earn more
 Median salary: 50% earn less and 50% earn more
 75% : 75% earn less and 25% earn more



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“We continue to have a strong commitment to working with industry,” says Mr. Anselmo. “NCC currently works with 62 different companies with 180 apprentices, 90% of whom are registered, including national companies such as Kennametal, Inc. and BAE Systems as well as local manufacturers such as Penn State Tool and Die. Our training is based on the requisite competencies that employers have identified. It is based on information from the employees in

those positions now because we want to capture the data while they are still there. As part of the continuum, NCC uses working machinists as trainers at local vocational technical centers.”

Trainee placement can take place anywhere between 250 and 600 training hours (with an average of 400 hours) when they become employees of the manufacturing company and cease M2K training. The employers provide on-the-job training for their new employees, and some also register their new employees as apprentices and enroll them in the National Tooling and Machining Association (NTMA) related instruction (theory) classes. Wages at the time of placement and throughout a customary 90-day probation period are typically between \$11.50 and \$14.00 per hour. Pay raises for all of these new hires generally occur after their first 90 days of employment and then annually or more often. In the case of apprentices, pay raises occur automatically upon successfully meeting a pre-determined standard that can be time- or competency-based.

Next Steps

“We are working on articulation agreements between local pre-apprenticeship/apprenticeship programs and area post-secondary institutions to enable program participants to receive advance credit for competencies they have already achieved,” says Mr. Anselmo.

“Westmoreland County Community College has already finalized the NTMA Journeyman Articulation worth 30 credits toward an Applied Industrial Technology degree, and a number of other potential articulation agreements with area post-secondary institutions are in process.”

Related Links

New Century Careers

<http://www.ncsquared.com>