

June 2019

Developing Competency-Based Apprenticeships

- Building on Past Experience to Implement Apprenticeship Initiative
- Utilizing Competency Models to Define Performance Based Objectives
- Improving Collaboration Between Educators and Industry Partners

Introduction

Henry Ford College (HFC), the lead educational institution for a former Trade Adjustment Assistance and Community College Career Training (TAACCCT) grant, called the Multi-State Advanced Manufacturing Consortium <https://www.skillscommons.org/handle/taaccct/493>, is now a key partner in an American Apprenticeship Initiative grant led by the Southeast Michigan Community Alliance and the Workforce Intelligence Network for Southeast Michigan, known as the Advance Michigan Center for Apprenticeship Innovation (AMCAI) www.miapprenticeship.org. The college utilized its prior experience as a TAACCCT grantee to work with partners to establish and expand customized competency-based Performance-Based Objectives (PBOs), starting with the U.S. Department of Labor, Employment and Training Administration's (ETA) Advanced Manufacturing Competency Model, for targeted occupations based on the tools and resources in the Competency Model Clearinghouse. The initial focus was on the evolving technical needs of automotive and transportation-related occupations in the advanced manufacturing industry sector and will progress to explore opportunities in non-traditional apprenticeship occupations such as the health care and information technology sectors.

The Workforce Need

National employment projections from the U.S. Bureau of Labor Statistics (BLS) indicate that there will be 66,800 job openings nationwide each year for drafters, engineering technicians and mapping technicians between 2016 and 2026. As a reference point, BLS data also indicates that there will be 366,800 annual job openings nationwide for computer and mathematical occupations and 638,400 annual job openings for healthcare support positions during that same time period.¹

From a state perspective, Michigan will have more than 811,000 high-demand, high-wage career openings to fill through 2024 in fields like information technology and computer science, healthcare, manufacturing and other careers.²

Approach

AMCAI is composed of eight southeast Michigan community colleges as well as many local and regional partners from business, workforce, and economic development. "Our goal is to accomplish 600 registered apprentices across a variety of occupations," says Callan Eschenburg, Project Manager, HFC, Center for Apprenticeship Innovation. "To date, AMCAI has 534 apprentices at 105 employers participating in 104 apprenticeship programs. We also serve as an intermediary standard holder for employers and have established 17 registered apprenticeships under that program. Although the majority of those intermediary standards are time-based, competency-based apprenticeships constitute our fastest growing segment. We have established them for several advanced manufacturing occupations: machinists, mechatronics technicians and mechanical drafters. Our participants can also utilize a tracking application/time management

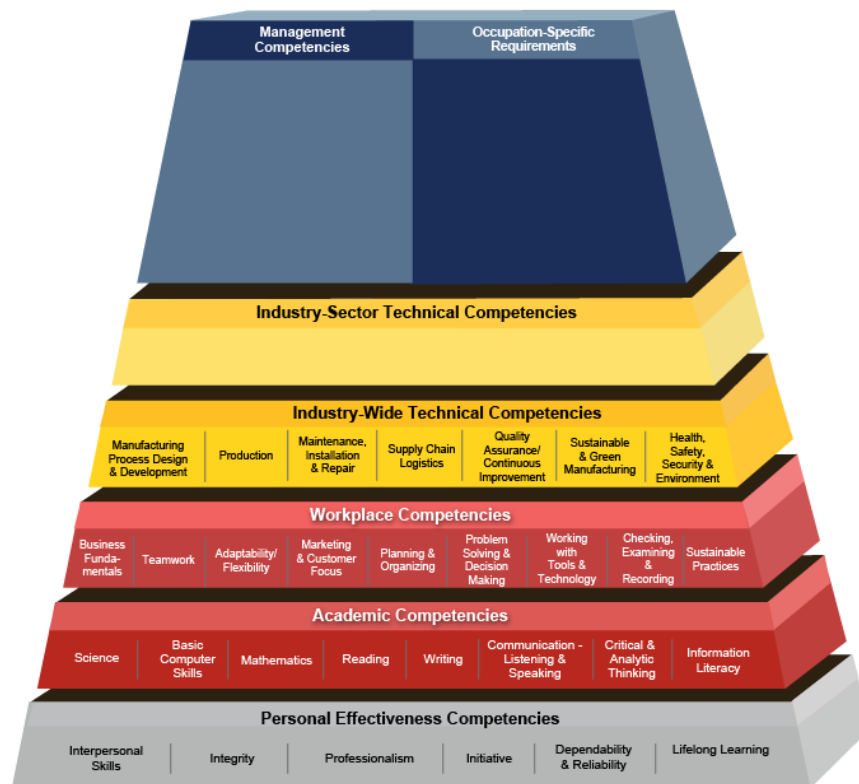
¹ Bureau of Labor Statistics, Employment Projections, <https://www.bls.gov/emp/tables/emp-by-major-occupational-group.htm>

² State Michigan, Marshall Plan for Talent, <https://www.michigan.gov/ted/0,5863,7-336-85008---,00.html>

system, [Workhands](#), to monitor their progress achieving PBOs in a competency-based apprenticeship. We're also currently working to better integrate and align the system with our PBOs."

Although, as noted earlier, many participating employers still use time-based apprenticeship models, the AMCAI grantee colleges also use PBOs, their customized version of the competencies delineated in ETA's Advanced Manufacturing Competency Model, to capture the skills apprentices need to have when they complete the program and to establish standards with apprenticeship employers.

Advanced Manufacturing Competency Model



These standards have two key components: Work Processes (what work needs to be done on the job) and Related Technical Instruction (what coursework needs to be completed at educational institutions). Utilizing a checklist of the PBOs that apprentices need to perform to be successful, college representatives confer with employers to customize the Related Technical Instruction they will provide.

Return on Investment

The use of competency-based PBOs improves collaboration and communication among the key players in workforce development initiatives. Educators and industry partners can develop customized checklists to assess student or employee skills in the classroom or at the worksite.

Employers can identify which skills they need and how these needs change over time. Education and training providers can leverage a standard, industry-recognized set of PBOs as a resource in aligning, improving and creating curriculum. Educators and employers can improve their partnership by using PBOs as a communication tool. In addition to facilitating the goal of expanding apprenticeship opportunities in the state, the AMCAI initiative has also resulted in several improvements in the apprenticeship experience. These

include reaching out to underserved populations and accelerating the process for employers to establish registered apprenticeships.

“We currently find a great amount of success in partnering with workforce development agencies (MichiganWorks!/MWA’s here in Michigan) and community organizations to develop and maintain the pre-apprenticeship and apprenticeship pipeline,” says Mr. Eschenburg.

Some example include:

- Focus:HOPE. Pre-apprentices go from Focus:HOPE to apprenticeships at Great Lakes Water Authority with Related Technical Instruction by HFC.
<https://www.focushope.edu/12-focus-hope-graduates-hired-as-apprentices-with-great-lakes-water-authority/>
- DTE Energy: Power & Trades Pathway. Participants engage in industry exploration and pre-apprenticeship pathways at HFC that can lead to apprenticeships at DTE and other energy and trade sector employers. <https://www.hfcc.edu/power-trades-pathways> The initial group was a cohort from Cody High School in Detroit. <https://www.hfcc.edu/power-trades-pathways/student-stories>
- United Automobile Workers (UAW) Ford Industrial Readiness Certificate Program. HFC is one many colleges that partner with UAW Ford (and now UAW Fiat Chrysler Automobiles) for this pre-apprenticeship certificate program. This program replaces the apprenticeship test that UAW members previously took to get onto the apprentice list. This change has resulted in an increase in diversity in the apprenticeship program.

Next Steps

“The college, and grant consortium, are currently planning for sustainability after our grant ends in September 2020,” says Mr. Eschenburg. “We are focused on continuous improvement, including maintaining competency-based FBOs; keeping up with technological advances and identifying new occupations for registered apprenticeships. We are beginning to also look more into non-traditional apprenticeship opportunities such as healthcare and information technology (IT) occupations as well as fields wehre manufacturing and IT merge. For example, mechatronics is an occupation where advanced manufacturing and IT are ginning to see overlap and some ‘merging.’ This field basicall requires journeypersons to be able to maintain and troubleshoot and integrated system, such as an assembly line. This requires mechanical, electrical, hydraulic, pneumatic, welding, machine building, preventative maintenance, and machining knowledge, as well as technologies that are very ‘IT-like,’ e.g., Automation/robotics, Programming, Programmable Logic Controllers, Vision systems, Networking, Ethernet, and Intelligent switches.”

Related Links

Henry Ford College
<https://www.hfcc.edu/>

American Apprenticeship Initiative
<https://www.dol.gov/apprenticeship/pdf/americanapprenticeshipinitiativegrantsawardsummaries.pdf>

Apprenticeship Information
<https://www.apprenticeship.gov/>

Performance-Based Objectives
<http://datatools.msamc.org/pbo/export.asp>

National Occupational Frameworks from the Urban Institute

<https://www.urban.org/policy-centers/center-labor-human-services-and-population/projects/competency-based-occupational-frameworks-registered-apprenticeships>

Mechatronics Competency Model

<https://www.careeronestop.org/CompetencyModel/Competency-Models/mechatronics.aspx>