Berkshire Innovation Center

BIC MANUFACTURING ACADEMY   FALL 2022

GENERAL DYNAMICS Mission Systems   MIT Massachusetts Institute of Technology   MASSACHUSETTS TECHNOLOGY COLLABORATIVE   BERKSHIRE COMMUNITY COLLEGE

The Academy will be an industry-led training collaborative designed to address persistent challenges facing the manufacturing economy in the Berkshire region by closing the gap between local supply chain capabilities and the needs of larger manufacturers through ongoing education, training, and technology assistance.

The Berkshire Innovation Center will host and manage the Academy. MIT's Initiative for Knowledge and Innovation in Manufacturing and the BIC's local academic and industry partners will develop curricula and provide training expertise. General Dynamics will be the lead industry partner. The project will be supported by BCC and other local educational partners, industry partners, Berkshire Regional Planning Authority, MassHire, and 1Berkshire.

The four program pillars include (1) technology bootcamps for manufacturing leaders to identify new opportunities for technology adoption, (2) deployment projects, which will allow participants to engage in applied manufacturing projects that incorporate new technologies, (3) a regional apprenticeship program among participating companies based on curricula jointly developed with MIT, and (4) a shared pool of online training content.

TECHNOLOGY BOOTCAMPS
Technology bootcamps will illustrate for regional firms the potential of new production technologies and how they might be applied in practice. The Academy's bootcamps will be half to full day sessions targeted at employees across the firm – managers, engineers, and technicians. Participants in the bootcamps will learn about a particular technology (either equipment or software) through a technical review from industry experts as well as case studies of firms that have deployed the technology successfully. For example, a bootcamp focused on an emerging robotics device would begin with a review of industrial robot applications, as well as new developments in robotic technologies. It would continue with case studies of regional firms that have adopted the new robotic technology, including the challenges they faced in deploying it and the benefits that they have seen.

The purpose of the bootcamps is to show firms what the technology can do and provide exposure to practical applications. Bootcamp sessions will be followed by opportunities for firms to further explore the technology and connect with the technical expert to discuss specific applications.

DEPLOYMENT PROJECTS
Deployment projects will involve use case applications of particular technologies. The Academy will utilize the advanced technologies available at the BIC, as well as partner with suppliers of particular technologies, to set up sample cells within the BIC to demonstrate the use of a particular piece of equipment or software system. In the robotics device example, there will be a sample device at the BIC that will be made available to regional firms for testing of specific scenarios.

The deployment projects at the BIC complement technology bootcamps because they allow employees at regional firms to access the technology at their convenience. Deployment projects will be a portal to the BIC's wider network of equipment and expertise at partner organizations. Firms considering adoption of a new technology will be able to eliminate typical barriers through this network of support.

A REGIONAL APPRENTICESHIP PROGRAM
The BIC Academy will develop and manage a regional apprenticeship program for incumbent workers from non-competitive manufacturers in Central and Western Massachusetts and surrounding regions. The program will recruit cohorts of 20-30 apprentices from participating firms to complete one or two semesters of coursework. Firms will be asked to identify junior technicians, preferably with an Associate's degree or below and less than 3 years' experience on the job, to join the apprenticeship program. The goal will be to provide these technicians with the skills to become fully self-sufficient on the job, as well as to develop the capabilities to move into more senior roles within their firm.

Based on the apprenticeship model developed at the Alliance for Working Together (AWT) in Ohio, BIC Academy apprentices will attend classes at the BIC with instructors that the Academy will recruit. Ideal instructors will be leaders of local manufacturing firms with an interest in workforce development and an understanding of the relevant advanced manufacturing practices. The BIC will work with MIT IKIM, Berkshire Community College and industry partners to establish a standard curriculum.

In addition to following a pre-arranged curriculum, apprentices will also have opportunities to discuss problems they have encountered on the job with their peers from other firms, as well as with instructors and trainers who have decades of experience with similar challenges. The Academy will also arrange small groups of apprentices with career coaches who talk through their desired career path, and will facilitate factory tours for apprentices to see the workspaces of their peers.

Our goal through the initial cohorts is to establish a sustainable model whereby regional companies see the value in the program and help subsidize the cost of future apprentices to join. As the program grows, we will work with our partners at the MassHire Berkshire Workforce Board to ensure that tuition costs for incumbent workers could be subsidized by the Massachusetts Workforce Training Fund.

A SHARED POOL OF ONLINE TRAINING CONTENT
The BIC will partner with MIT IKIM and other academic and industry partners to curate and develop an online library of training materials targeted at manufacturing firms participating in the Academy. The online training materials will complement the topics covered in the Technology Bootcamps and complement the curriculum developed for the Apprenticeship Program. It will also document the Deployment Projects so that take aways and lessons learned can be preserved and shared.

The library will live in an online portal specific to the BIC Academy, where Academy participants can connect with one another and others within the BIC network, share challenges and best practices and participate in forum discussions. The portal will be designed to encourage participants and others in the network to work with BIC staff and interns to create their own videos capturing their deployment projects and experiences with particular technologies. Resources will be managed such that we leverage existing content from MIT and others and produce original content only where gaps exist.