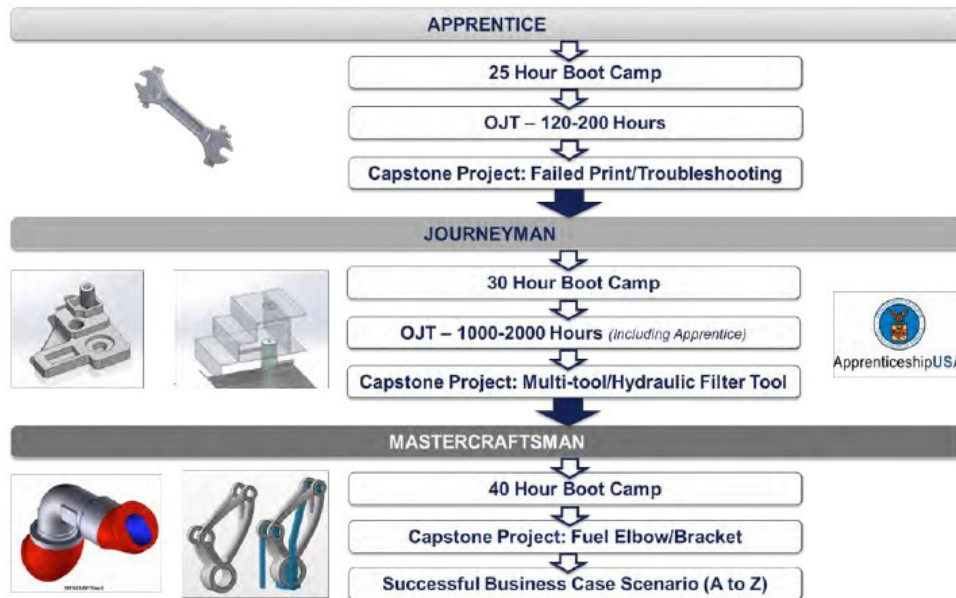


SUCCESS STORY

3027

Training modules created to develop Navy workforce personnel AM knowledge, skills and abilities

Navy personnel now have framework for training within three tiers of Naval Civilian Artisan pathways



America Makes tiered additive manufacturing training program overview.

PROBLEM

Within the Navy, artisan/technical skill sets required for warfighters and civilians using additive manufacturing are being developed through on-the-job training and remain more art rather than science. Training for military personnel is ad-hoc and disconnected from the operational environments in which they work. A lack of a standardized, industry-vetted Navy additive manufacturing workforce development framework causes training to be ad-hoc and difficult to scale with impact. Such deficiencies ultimately result in the benefits of additive manufacturing capability not being fully realized by the Navy.

OBJECTIVE

The purpose of this project was to develop a framework for a three-tiered, Additive Manufacturing education, training, and certification program for the Navy Civilian Artisans: Apprenticeship, Journeyman, Mastercraftsman by collecting and deploying current best practices of content, training practices, and industry standards to build new pathways for Navy through a pilot program on additive manufacturing. Each tier of developed training was piloted with a cohort of OPNAV identified personnel to vet training content and duration.



AMERICA MAKES
TECHNOLOGY
DEVELOPMENT
ROADMAP

This project aligns to:



ASTM PROCESS
CATEGORY:
N/A

EQUIPMENT:
N/A

MATERIAL:
N/A

TECHNICAL APPROACH

America Makes developed a framework for a formalized Additive Manufacturing education, training, and certification program for the Navy artisan workforce. The project team collected current best practices of content and training practices as well as industry standard frameworks to deploy throughout the build of the new pathway training content and pilot program. This framework utilized the existing workforce structures within Navy as well as identifying and mapping of industry recognized credentials used across the private sector. Each tier of developed training was piloted with a cohort of OPNAV-identified personnel to vet training content and duration. Feedback was collected using surveys and/or interviews, evaluated, and revisions were implemented where applicable to close the feedback loop. The team drafted a Navy AM Job Profiles Report to identify AM-related skills required to perform specific jobs in warfare centers, depots, and ships by civilians and military personnel. In addition to creation of these new AM pathways, the America Makes team developed a transition plan to scale up the new program. The transition and scale up plan detailed best practice recommendations, department of labor AM Apprenticeship options that could be earned if elected, as well as strategies for deployment to the greater network.

ACCOMPLISHMENTS

The project team was successful in completing their main goal and mission of ensuring that the Navy possesses a standard framework for training within the three tiers of Naval Civilian Artisan pathways of: Apprentice, Journeyman, and Mastercraftsman. An external SharePoint site was created to house and share the training modules with Navy personnel. The SharePoint site can be utilized to gain access to the included instructor notes and supplemental digital files/CAD files for deployment. America Makes provides access credentials to any Navy users seeking training.

As the training was mapped, the below options were presented along with the Scale Up Plan for any participants in the created tiered program looking to seek the DOL AM Apprenticeship:

- Pre-apprenticeship: Individuals could sign up for pre-apprenticeship which would allow for training and OJL hours documented ahead of placement in an apprenticeship.
- Apprenticeship: Complete the standards documentation and wage-earning documentation to obtain apprenticeship approved on a national level and enroll each into formal apprenticeship.

A Transition Scale-Up Plan to move the created tiered training pathway into deployment past the initial pilot group was presented in detail to the OPNAV team.

The Navy AM Job Profiles Report to identify AM-related skills required to perform specific jobs in warfare centers, depots, and ships by civilians and military personnel.

PROJECT END DATE

June 2022

DELIVERABLES

- Certification program modules (apprentice, journeyman, master-craftsman)
- AM job profiles report (Navy artisan workforce)
- Three program pilots
- Transition/scale-up plan

FUNDING

\$950,000 total project budget

PROJECT PARTICIPANTS

Project Principal:

NCDMM/America Makes

Other Project Participants:

Applied Systems & Technology Transfer, LLC
The Barnes Global Advisors
The Lanterman Group
Robert C. Byrd Institute

Public Participants:

U.S. Department of Defense