

**National Science Foundation (NSF) Advanced Technology Education (ATE)  
Design Thinking: Additive Manufacturing Summer Institute (AMSI) (1700455)  
Project Summary**

**Total: \$ 815,164**

**Project Period: 7/1/2017 to 6/30/2020**

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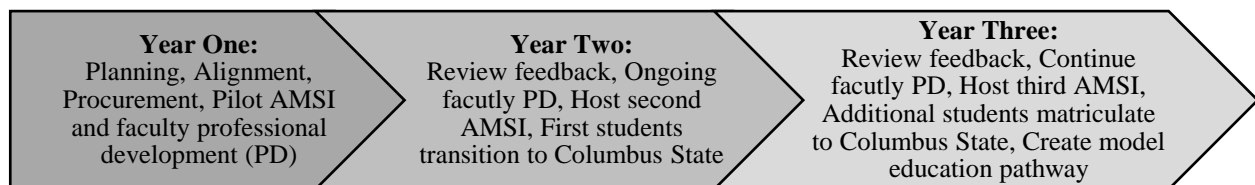
Columbus State Community College, in collaboration with the PAST Foundation, the Ohio Manufacturing Institute at The Ohio State University, Metro Early College High School, Tolles Career and Technical Center, Battelle Memorial Labs, EWI, and industry partners, will develop a career pathway in additive manufacturing. Manufacturing is vital to Ohio and comprises 16.9% of the state's economy. Additive manufacturing has been around since the advent of 3D printing in the 1980's. A recent survey of 100 manufacturers, two-thirds were already using additive manufacturing and its use is projected to increase. This project will address a reported moderate to severe shortage of skilled manufacturing technicians. It will expand and strengthen the pipeline between K12 and postsecondary programs. Education across multiple additive manufacturing tools will create flexible employees ready to problem solve.

The goal of the proposed ATE project is to develop and pilot new programming that will lead to an increase in the supply of qualified technicians who have expertise in additive manufacturing. There are three objectives proposed for the project:

- To develop and implement an Additive Manufacturing Institute Model to provide high school students with the opportunity to explore the variety of careers associated with advanced manufacturing leading to earning industry recognized certifications.
- To develop and implement an interactive High School Faculty Professional Development Initiative in additive manufacturing that prepares teachers to design relevant and rigorous curriculum.
- To develop a model education pathway between the Additive Manufacturing Institute and Columbus State manufacturing courses.

The Design Thinking: Additive Manufacturing Summer Institute project will strengthen the educational pipeline and fill the employment gap through three integrated key deliverables:

1. Additive Manufacturing Summer Institute: The project will design and implement a replicable and scalable, immersive summer program that readies high school students (juniors and seniors) to enter post-secondary advanced manufacturing programs.
2. High School Faculty Professional Development Initiative: The project will prepare high school teachers to design relevant and rigorous curriculum through professional development integrated in and around the Additive Manufacturing Summer Institute.
3. Model Education Pathway: The project will develop a model education pathway between the Additive Manufacturing Summer Institute and associate degree-level manufacturing courses.



Seven 3D printers will be procured for the project, housed at Columbus State Community College during the academic year and transported to Past Foundation for the summer institute.

- (2) Form +1 SLA 3D Printer
- (2) Form 2 3D Printer
- Object30 Prime 3D Printer
- Stratasys Mojo 3D Printer Print Package
- Mcore ARKe 3D Printer Print Package