

Certificate of Achievement (COA)

Additive Manufacturing Technology: 3D Design and Production

Program Description

The Certificate of Achievement in Additive Manufacturing Technology: 3D Design and Production provides knowledge of the fundamentals of computer-aided design (CAD), design for additive manufacturing (DfAM), reverse engineering principles, rapid 3D printing prototyping, and the required knowledge, skills, and abilities for additive manufacturing lab technicians. Students learn industry-standard practices for the most commonly utilized 3D printing materials and technologies, including fused deposition modeling (FDM), stereolithography (SLA), material jetting, selective laser sintering (SLS), and direct metal laser sintering (DMLS). In addition, students in this program will master the fundamental of 3D printing systems operation, maintenance and service. The certificate curriculum focuses on considerations and rapid prototyping applications of Additive Manufacturing (AM) through a combination of lecture, demonstration and project-based learning. Students will explore the design and material considerations within AM, configure systems, build prototypes and create functional parts. The certificate prepares individuals for a range of existing and emerging occupations in the advanced manufacturing sector, including CAD designers, additive manufacturing technicians, and applications engineering technicians.

Program Learning Outcomes

Upon completion, students will be able to

- Apply knowledge of additive manufacturing (AM)/3D printing to analyze, compare, and utilize multiple 3D printing processes and materials to design, prototype, and fabricate components and products for industry
- Analyze AM/3D printing design and production considerations to evaluate and determine the optimal processes and materials to meet industry standards and client specifications
- Demonstrate the skills required for each of the different roles within an AM product development and production facility: CAD designer, AM technician, applications engineer, and quality control
- Produce prototypes and components for fabrication utilizing Design for Additive Manufacturing (DfAM) concepts based on current industry standards and practices

Certificate of Achievement Requirements

Certificates of Achievement are awarded by the college and notated on official transcripts.

- Completion of all major courses with a C grade or higher
- No more than six quarter units may be transferred from other academic institutions

Program Requirements

IMPORTANT NOTE: Some courses have prerequisites; see the college catalog for more information.

IMPORTANT NOTE: Some courses have a cross-listed and/or honors version. Students will receive credit for only one version of the course.

Required Core: (17 Units)

Course	Title	Units
DMT 53	Introduction to 3D Printing/Additive Manufacturing	4
DMT 54	3D Printing/Additive Manufacturing: Applications and Practice	4
DMT 56	3D Printing for AM Support Technicians and Operators	5
DMT 57	Design for Additive Manufacturing (DfAM)	4

List A: (4 Units)

Course	Title	Units
DMT 60A	SolidWorks (Introduction)	4
DMT 60B	SolidWorks (Introduction)	4
DMT 60C	SolidWorks (Introduction)	4
DMT 60D	SolidWorks (Introduction)	4
DMT 60E	SolidWorks (Introduction)	4
DMT 65A	Creo Parametric (Introduction)	4
DMT 65B	Creo Parametric (Introduction)	4
DMT 65C	Creo Parametric (Introduction)	4
DMT 65D	Creo Parametric (Introduction)	4
DMT 65E	Creo Parametric (Introduction)	4

Total Required: 21 Units