# **Work Process Schedule**

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| Additive Manufacturing Technician | |
| **Job Description:** Apprentices will learn to maintain and repair additive manufacturing and 3-D printing equipment in their industry. | |
| **RAPIDS Code:** 2097CB | **O\*NET Code:** 17-3029.09 |
| **Estimated Program Length:** 1.5 years | |
| **Apprenticeship Type:**  Competency-Based  Time-Based  Hybrid | |

Suggested On-the-Job Learning Outline

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| Protects self and other workers from accidents and injuries | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Adheres to personal grooming requirements in the facility |  |  |
| 1. Uses personal protective equipment |  |  |
| 1. Follows fire safety procedures |  |  |
| 1. Works around energy sources and performs lockout/tag-out procedures |  |  |
| 1. Handles and stores hazardous materials as assigned |  |  |
| 1. Demonstrates both emergency and standard shutdown of all required equipment |  |  |
| 1. Uses and locates eyewash sinks and first-aid kits |  |  |
| 1. Demonstrates, reports, and responds promptly, safely, and appropriately to emergency or hazard situations and troubleshoots any issues that may arise |  |  |
| 1. Handles dense material |  |  |
| 1. Adheres to National Electric Code (NEC) safety procedures for tightening, disconnecting, or connecting electrical conductors and components |  |  |
| 1. Adheres to hazard avoidance procedures when in contact with live electrical systems |  |  |
| 1. Resets circuit breakers |  |  |

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| Demonstrates workplace skills and plans and controls work processes | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Procures and evaluates information |  |  |
| 1. Conducts discussions with line managers and colleagues and within the team in a situation appropriate manner; presents facts and circumstances |  |  |
| 1. Communicates in a timely manner using available modes of communication |  |  |
| 1. Uses opportunities to resolve conflicts |  |  |
| 1. Selects proper software |  |  |
| 1. Handles technical computer systems and, in particular, deploys software and connects and uses peripheral devices |  |  |
| 1. Prepares protocols and reports using standard software |  |  |
| 1. Demonstrates proficiency in mathematical processes |  |  |
| 1. Schedules time to run machine |  |  |

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| Selects the proper materials, tools, and equipment for the job | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Chooses and applies a type of material to render parts |  |  |
| 1. Compares the differing properties and characteristics of common materials used for additive manufacturing models |  |  |
| 1. Ensures proper parts are in stock and orders parts, supplies, or equipment from catalogs or suppliers |  |  |
| 1. Plans and lays out repair work |  |  |
| 1. Demonstrates fluency in using technology to assess and troubleshoot issues |  |  |
| 1. Initiates a formal bid process for materials |  |  |
| 1. Evaluates supplier capabilities against a standard set of well-documented criteria |  |  |
| 1. Demonstrates proper storage of additive materials (i.e., powders) |  |  |

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| Prepares for installation | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Builds or assembles additive manufacturing equipment devices or systems |  |  |
| 1. Engages, as part of the engineer team, in the design, configuration, or application of additive manufacturing equipment systems |  |  |
| 1. Fabricates housings, fittings, or fixtures, using metalworking machines |  |  |
| 1. Develops three-dimensional simulations and models of automation systems |  |  |
| 1. Evaluates the efficiency and reliability of industrial additive manufacturing equipment systems |  |  |

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| Installs and assembles machine | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Sets up and commissions a 3-D printer and supporting equipment |  |  |
| 1. Installs, programs, or repairs programmable controllers, robot controllers, end-of-arm tools, or conveyors |  |  |
| 1. Documents additive manufacturing equipment test procedures and results |  |  |
| 1. Aligns, fits, or assembles component parts |  |  |
| 1. Terminates wires between controllers |  |  |
| 1. Assembles, installs, or repairs key components |  |  |
| 1. Sets up and operates machine tools to repair or fabricate machine parts, fixtures, or tools |  |  |
| 1. Aligns and calibrates new equipment after installation |  |  |
| 1. Tests performance of additive manufacturing equipment assemblies |  |  |

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| Operates the machine | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Starts up and shuts down an operation in accordance with standard operating procedures |  |  |
| 1. Fabricates a verification part or assembly using additive manufacturing equipment |  |  |
| 1. Conducts quality assurance post-print |  |  |

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| Uses proper methods with electrical systems | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Uses a multi-meter properly |  |  |
| 1. Calculates power in an electrical circuit given current and voltage |  |  |
| 1. Installs fuses and circuit breakers in circuits |  |  |
| 1. Inspects circuit breakers to determine if they have been tripped |  |  |
| 1. Recognizes all protective tags and lockout devices used to isolate equipment and components from hazardous energy source |  |  |

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| Problem solves, diagnoses, and troubleshoots effectively | | |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Inspects, operates, or tests machinery or equipment to diagnose machine malfunctions |  |  |
| 1. Dismantles machines, equipment, or devices |  |  |
| 1. Diagnoses mechanical problems and determines the most efficient way to correct them |  |  |
| 1. Uses proper standards and techniques to troubleshoot |  |  |
| 1. Troubleshoots additive manufacturing equipment systems |  |  |
| 1. Repairs machines, equipment, or systems |  |  |

Suggested Related Instruction Outline

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| Provider | |
| **Name:** | |
| **Address:** | |
| **Email:** | **Phone Number:** |
| **Related Instruction Hours:** 216 | |

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| **Course Number** | **Course Title** | **Contact Hours** |
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