OJT CORE COMPETENCIES

Additive Manufacturing Technician

TERM OF APPRENTICESHIP

The term of the apprenticeship is 2 years.

APPRENTICESHIP APPROACH

Time-based ☐ Competency-based ☒ Hybrid ☐

Apprenticeships may be time-based, requiring a set number of OJT (on-the-job training) and RTI (related technical instruction) hours; competency-based, allowing completion once all skills are mastered; or hybrid, blending both time and competency requirements.

SCHEDULE AND CHECKLIST

Essential Job Categories	Competencies
Safety	• Adheres to personal grooming requirements in the facility • Uses personal protective equipment • Follows fire safety procedures • Works around energy sources and performs lockout/tag-out procedures • Handles and stores hazardous materials as assigned • Demonstrates both emergency and standard shutdown of all required equipment • Uses and locates eye wash sinks and first-aid kits • Demonstrates, reports, and responds promptly, safely, and appropriately to emergency or hazard situations and troubleshoots any issues that may arise • Handles dense material • Adheres to National Electric Code (NEC) safety procedures for tightening, disconnecting, or connecting electrical conductors and components • Adheres to hazard avoidance procedures when in contact with live electrical systems • Resets circuit breakers • Employer-specific task
Electrical Systems	• Uses a multimeter properly • Calculates power in an electrical circuit given current and voltage • Installs fuses and circuit breakers in circuits • Inspects circuit breakers to determine if they have been tripped • Recognizes all protective tags and lockout devices used to isolate equipment and components from hazardous energy sources • Employer-specific task

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SCHEDULE AND CHECKLIST

Essential Job Categories	Competencies
Machine Installation and Assembly	• Sets up and commissions a 3-D printer and supporting equipment • Installs, programs, or repairs programmable controllers, robot controllers, end-of-arm tools, or conveyors • Builds or assembles additive manufacturing equipment devices or systems • Engages, as part of the engineer team, in the design, configuration, or application of additive manufacturing equipment systems • Aligns, fits, or assembles component parts • Terminates wires between controllers • Assembles, installs, or repairs key components • Dismantles machines, equipment, or devices • Employer-specific task
Machine Operations	• Schedules time to run machine • Fabricates housings, fittings, or fixtures, using metalworking machines • Evaluates the efficiency and reliability of industrial additive manufacturing equipment systems • Sets up and operates machine tools to repair or fabricate machine parts, fixtures, or tools • Aligns and calibrates new equipment after installation • Tests performance of additive manufacturing equipment assemblies • Starts up and shuts down an operation in accordance with standard operating procedures • Fabricates a verification part or assembly using additive manufacturing equipment • Employer-specific task
Material Knowledge	• Chooses and applies a type of material to render parts • Compares the differing properties and characteristics of common materials used for additive manufacturing models • Ensures proper parts are in stock and orders parts, supplies, or equipment from catalogs or suppliers • Initiates a formal bid process for materials • Evaluates supplier capabilities against a standard set of well-documented criteria • Demonstrates proper storage of additive materials (i.e., powders) • Employer-specific task

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SCHEDULE AND CHECKLIST

Essential Job Categories	Competencies
Technical Applications	• Develops three-dimensional simulations and models of automation systems • Selects proper software • Handles technical computer systems and, in particular, deploys software and connects and uses peripheral devices • Employer-specific task
Technical Communication	• Procures and evaluates information • Conducts discussions with line managers and colleagues and within the team in a situation-appropriate manner; presents facts and circumstances • Prepares protocols and reports using standard software • Documents additive manufacturing equipment test procedures and results • Employer-specific task
Technical Mathematics	• Demonstrates proficiency in mathematical processes • Employer-specific task
Troubleshooting	• Plans and lays out repair work • Demonstrates fluency in using technology to assess and troubleshoot issues • Inspects, operates, or tests machinery or equipment to diagnose machine malfunctions • Diagnoses mechanical problems and determines the most efficient way to correct them • Uses proper standards and techniques to troubleshoot • Troubleshoots additive manufacturing equipment systems • Repairs machines, equipment, or systems • Employer-specific task

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IMEC.org

info@IMEC.org

888-806-4632