Opportunity Map
Advanced Manufacturing

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Specialized Skills:

- Troubleshooting/ Problem Solving
- Computer Literacy
- Mechanical Aptitude/ Mathematics
- Machinery
- Blueprinting
- Safety Standards
- Detail Oriented
- Communications

$18-23/hr.

Team Assembler

$18-28/hr.

- Electrical/Electronic Production Tech.
- Manufacturing Production Tech
- Team Assembler
- Mechanical Drafter
- Electrical/Electronic Production Tech.
- Manufacturing Production Tech

$18-36/hr.

- Engineering Technician
- Mechanical Engineering Tech/Supervisor
- Electrical/Electronic Production Tech/Supervisor
- Manufacturing Production Tech
- CNC Operator/Programmer
- Industrial Machine Mechanic
- Electro-mechanical Technician
- Electrical Drafter
- Mechanical Drafter

$25-50/hr.

- Mechanical Engineering Technologists and Technicians
- Mechanical Engineer

Credit Certificates

- AutoCAD/Solidworks
- Industrial Maintenance for Automation
- Industrial 4.0 Fundamentals and Applications

- Forklift Truck
- Inventory
- Automation & Controls
- Standard Operating Procedures (SOP)
- Reading Comprehension
- Principles of Lean/ Continuous Improvement Processes
- Microsoft Office
- Microsoft Excel
- Maintenance & Repair

Adult Education/ Non-credit Job Training

- IT 106 (Maintenance and Process Terminology)
- IT 201 (Blueprint Reading and Measurement Fundamentals)
- Manufacturing Pre-apprenticeship

Credit Skills Builders (single classes)

- MPT 101 Production Tech
- MPT 111 Fundamentals of Manufacturing & Automation I & ELM 110 Basic Electricity
- Manufacturing and Production Technology MPT 101 and MPT 102

- Mechatronics Foundation
- Industrial Communications and Data Analytics
- Industrial Electronics Technology / Industrial Mechatronics
- Industrial Programming and Controls
- Industrial Machine Mechanic/Maintenance
- Computer Numeric Controlled (CNC) Machining
- Industrial Millwright
- Machining Level I
- CNC Milling: Operations and Programming
- Welding

Associate & Bachelor's Degree

- AAS Manufacturing Machining Technology
- AAS Technology-Automated Systems
- AAS Pre-engineering
- BS Engineering (8 pathways)

WestEd Center for Economic Mobility

Advanced Manufacturing: Engineering and Producing Tomorrow's Solutions

Cluster Definition: The Advanced Manufacturing Career Cluster blends innovative technologies and practices to enhance design and production. It covers areas such as engineering, research and development, automation and artificial intelligence, equipment maintenance, safety protocols, and quality control. This Cluster aims to increase efficiency, reduce waste, ensure safety, and produce high-quality goods, driving the industry's growth and adapting to modern demands.

Sub-Clusters

Engineering: Careers that use engineering principles to develop and improve manufacturing processes and systems and to design products. Professionals in this field tackle production challenges, boost efficiency, leverage advanced technologies, and contribute to the sector's advancement. The manufacturing sector encompasses numerous types of engineering, including mechanical, electrical, chemical, biopharmaceutical, materials, and industrial. This Sub-Cluster also involves research and development and prototyping for emerging products and systems.

Industrial Machinery: Careers focused on working with manual equipment, such as computer-numerical-controlled (CNC) machines, 3D printers, quality control equipment, material handling tools, maintenance and repair devices, specialized machining and surface treatment machines, fabrication equipment, and energy management systems. Professionals in this field set up, operate, maintain, and repair advanced machinery, ensuring efficient and safe performance.

Production & Automation: Careers centered on the hands-on management and execution of manufacturing processes. This field involves automation, overseeing production lines, quality control, assembly and product finishing, and ensuring efficient workflow. This Sub-Cluster includes specialized sectors such as processed food and beverage production and textile manufacturing, emphasizing efficiency and adherence to industry standards across diverse production types.

Robotics: Careers involved in developing, implementing, and maintaining technologies that deploy robotics. This field encompasses roles focused on programming robots; overseeing production lines enhanced by robotics, mechatronics, and smart manufacturing concepts; and ensuring that these technologies operate efficiently and safely.

Safety & Quality Assurance: Careers dedicated to ensuring workplace safety, worker health, environmental compliance, and product quality. Professionals in this field develop and implement standards and practices to maintain safe and sustainable operations while conducting rigorous testing and inspections to uphold product integrity.

Sample Occupations

- Assembler & Fabricator
- CAD/ Drafter
- CNC Machinist
- Coil Winder, Taper & Finisher
- Electrical Assembler
- Engineering Technologist
- First Line Supervisor
- Food Production Related Role
- Industrial Machinery Mechanic
- Lean Manufacturing Specialist
- Machine Operator
- Maintenance & Repair Worker
- Millwright
- Process Technician
- Quality Control Inspector
- Robotics Technician
- Safety Coordinator
- Sewers and Setters
- Textile Dyeing & Finishing
- Tool and Die Maker

Emerging Occupations

- 3D Printing Technician
- Automation Engineer
- CMM Operators and Programmer
- Composite Materials Engineer
- Cybersecurity Analyst for Manufacturing Systems
- Digital Twin Engineer
- Environmental Safety
- Industrial Internet of Things Specialist
- Process Optimization Specialist
- Quality Assurance Technologist
- Supply Chain Role
- Sustainable Manufacturing Specialist

Sample Places of Work

- Aerospace and Defense Manufacturers
- Automotive Manufacturers
- Distribution Centers
- Electronics Manufacturers
- Engineering and Design Offices
- Factories and Production Facilities
- Food and Beverage Producers
- Manufacturing Consulting Firms
- Manufacturing Equipment Suppliers
- Medical Device Manufacturers
- Metalworking and Fabrication Shops
- OSHA Consulting Firms
- Pharmaceutical Manufacturers
- Plastics and Rubber Producers
- Quality Control and Testing Centers
- Research and Development Laboratories
- Robotics Manufacturers
- Self-Employed, Entrepreneur
- Small Businesses
- Steel/ Aluminum Mills
- Supply Chain and Logistics Companies
- Textile and Apparel Manufacturer