

Advanced Manufacturing - Production

Sector: Advanced Manufacturing	Occupation: Production	Credential(s): MSSC

CareerWise Colorado (CWC) will introduce and support development of these **Career Ready competencies** throughout the apprenticeship (through boot camp, periodic CWC convening's, and training modules delivered by supervisors/coaches over time).

Career Ready Competencies		
Entrepreneurial	Critical thinking and problem solving	<input type="checkbox"/>
	Creativity and innovation	<input type="checkbox"/>
	Inquiry	<input type="checkbox"/>
	Risk taking	<input type="checkbox"/>
Personal	Self-direction	<input type="checkbox"/>
	Adaptability and flexibility	<input type="checkbox"/>
	Self-management	<input type="checkbox"/>
Civic/Interpersonal	Collaboration and teamwork	<input type="checkbox"/>
	Communication	<input type="checkbox"/>
	Global and cultural awareness	<input type="checkbox"/>
	Ethics and integrity	<input type="checkbox"/>
Professional	Core Academic Foundation	<input type="checkbox"/>
	Time management	<input type="checkbox"/>
	Grit and resilience	<input type="checkbox"/>
	Work ethic	<input type="checkbox"/>
	Self-advocacy	<input type="checkbox"/>

Technical Competencies

For each competency, use the letter X to indicate whether each competency can be taught and evaluated on the job.

Number	Technical Competencies of the Occupation Pathway
<input type="checkbox"/> 1	Read work orders or other instructions to determine product specifications or materials requirements.
<input type="checkbox"/> 2	Study and review blueprints or other instructions to determine equipment setup requirements and operational methods or sequences.
<input type="checkbox"/> 3	Monitor lubrication of equipment or workpieces and equipment operation to ensure proper functioning.
<input type="checkbox"/> 4	Monitor equipment operation to ensure that products are not flawed.
<input type="checkbox"/> 5	Monitor the productivity or efficiency of industrial operations.
<input type="checkbox"/> 6	Mark products, workpieces, or equipment with identifying information.
<input type="checkbox"/> 7	Inspect metal, plastic, or composite products.
<input type="checkbox"/> 8	Inspect finished products to locate flaws.
<input type="checkbox"/> 9	Measure materials to mark reference points, cutting lines, or other indicators.
<input type="checkbox"/> 10	Measure physical or chemical properties of materials or objects.
<input type="checkbox"/> 11	Weigh finished products (e.g. using measuring devices such as templates, micrometers, or scales).
<input type="checkbox"/> 12	Measure dimensions of completed products or workpieces to verify conformance to specifications.

<input type="checkbox"/> 13	Sort materials or products for processing, storing, shipping
<input type="checkbox"/> 14	Determine causes of operational problems or failures and diagnose equipment malfunctions.
<input type="checkbox"/> 15	Determine production equipment settings (e.g. reference points, machine cutting paths, or hole locations, and compute angular and linear dimensions, radii, and curvatures).
<input type="checkbox"/> 16	Calculate specific material, equipment, or labor requirements for production.
<input type="checkbox"/> 17	Select project materials (e.g. cleaning materials, tools or equipment).
<input type="checkbox"/> 18	Select production equipment according to product specifications.
<input type="checkbox"/> 19	Create diagrams or blueprints for workpieces or products (e.g. using computer-assisted drafting software or drafting instruments and graph paper).
<input type="checkbox"/> 20	Create physical models or prototypes.
<input type="checkbox"/> 21	Prepare detailed work plans (e.g. to meet production and schedule requirements).
<input type="checkbox"/> 22	Clean and maintain clean work areas and production equipment.
<input type="checkbox"/> 23	Dispose of trash or waste materials, including hazardous materials.
<input type="checkbox"/> 24	Move, stack or load finished items for further processing or shipment.
<input type="checkbox"/> 25	Assemble machine tools, parts, or fixtures.
<input type="checkbox"/> 26	Feed materials or products into or through equipment.
<input type="checkbox"/> 27	Mount materials, workpieces, attachments or tools onto production equipment.

<input type="checkbox"/> 28	Adjust equipment controls to regulate flow of production materials or products.
<input type="checkbox"/> 29	Calibrate or adjust scientific or technical equipment (e.g. using tools such as calipers, micrometers, height gauges, protractors, or ring gauges).
<input type="checkbox"/> 30	Adjust equipment controls (e.g. Start machines and turn handwheels or valves to engage feeding, cooling, and lubricating mechanisms).
<input type="checkbox"/> 31	Prepare materials for processing or assembly.
<input type="checkbox"/> 32	Disassemble equipment for maintenance or repair.
<input type="checkbox"/> 33	Install production equipment or systems.
<input type="checkbox"/> 34	Operate welding equipment (e.g. metalworking, brazing, heat-treating, welding, or cutting equipment).
<input type="checkbox"/> 35	Construct patterns, templates, or other work aids.
<input type="checkbox"/> 36	Remove products or workpieces from production equipment.
<input type="checkbox"/> 37	Lay out or align parts or workpieces to ensure proper assembly.
<input type="checkbox"/> 38	Draw guide lines or markings on materials or workpieces using patterns or other references.
<input type="checkbox"/> 39	Set equipment guides, stops, spacers, or other fixtures.
<input type="checkbox"/> 40	Operate metal or plastic forming equipment (e.g. Set up, adjust, or operate basic or specialized machine tools used to perform precision machining operations).
<input type="checkbox"/> 41	Operate industrial equipment (e.g. forklifts or other loaders).
<input type="checkbox"/> 42	Lift materials or workpieces using cranes or other lifting equipment.

<input type="checkbox"/> 43	<p>Operate grinding equipment (e.g. Machine parts to specifications, using machine tools, such as lathes, milling machines, shapers, or grinders).</p>
<input type="checkbox"/> 44	<p>Operate cutting equipment (e.g. Set up or operate metalworking, brazing, heat-treating, welding, or cutting equipment).</p>
<input type="checkbox"/> 45	<p>Enter commands, instructions, or specifications into equipment.</p>
<input type="checkbox"/> 46	<p>Maintain production or processing equipment (e.g. remove and replace broken or worn machine tools, using hand tools)</p>
<input type="checkbox"/> 47	<p>Clear equipment jams (e.g. extract or lift jammed pieces from machines, using fingers, wire hooks, or lift bars).</p>
<input type="checkbox"/> 48	<p>Apply lubricants or coolants to workpieces or production equipment.</p>
<input type="checkbox"/> 49	<p>Sharpen cutting or grinding tools.</p>
<input type="checkbox"/> 50	<p>Repair or replace production equipment or tools (e.g. Make minor electrical and mechanical repairs and adjustments to machines and notify supervisors when major service is required).</p>
<input type="checkbox"/> 51	<p>Record operational or production records or data (e.g. meter readings, and quantities, types, and dimensions of materials produced).</p>
<input type="checkbox"/> 52	<p>Prepare operational reports (e.g. standard operating procedures, manufacturing batch records, inventory reports, or productivity reports).</p>
<input type="checkbox"/> 53	<p>Exchange information with colleagues (Confer with engineering, supervisory, or manufacturing personnel to exchange technical information).</p>
<input type="checkbox"/> 54	<p>Confer with others to resolve production problems, equipment malfunctions, equipment repair or maintenance needs.</p>

<input type="checkbox"/> 55	<p>Explain electrical, pneumatic, hydraulic, and machine automation systems reliability issues, including when to inform maintenance personnel.</p>
<input type="checkbox"/> 56	<p>Observe and demonstrate proper functioning of belt drive and roller chain drive systems, including when to inform maintenance personnel.</p>
<input type="checkbox"/> 57	<p>Observe and demonstrate proper functioning of mechanical power transmission equipment, bearings and shafts, and couplings, including when to inform maintenance personnel.</p>
<input type="checkbox"/> 58	<p>Train or instruct personnel on proper operational procedures.</p>
<input type="checkbox"/> 59	<p>Advise others on ways to improve processes or products.</p>
<input type="checkbox"/> 60	<p>Observe and demonstrate systems of safety used by high-performance manufacturers.</p>
<input type="checkbox"/> 61	<p>Identify, report, and monitor potential safety hazards at work and take corrective action to eliminate potential hazards.</p>
<input type="checkbox"/> 62	<p>Demonstrate safety procedures per company policy and relevant laws.</p>
<input type="checkbox"/> 63	<p>Observe the overall quality process and quality systems such as Six Sigma, Total Quality Management, Lean Management, and relevant standards, such as ISO 9001.</p>