



## MANUFACTURING PROCESSES

Manufacturing Process youth apprentices work with tools, equipment, and processes in various manufacturing industries. Apprentices must adhere to industry safety and security standards.

**Length of Apprenticeship:** One or two years

## REQUIRED COMPETENCIES

Youth apprentices must become proficient in both general employability and occupation-specific competencies. All of these, and examples of how each can be demonstrated, are found in the following pages. **Year 1:** A total of 17 occupational competencies. (All 7 Manufacturing Fundamentals competencies with no substitution, plus a minimum of 10 Manufacturing Processes competencies.) **Year 2:** A total of 8 Manufacturing Processes competencies using a minimum of one different process than learned in Year 1. Employers may substitute out one Manufacturing Processes competency per year and should write in the competency they are adding. Where necessary, skills can be simulated. Youth apprentices must be evaluated on these competencies at least two times each year of their apprenticeship.

**Note: Students who completed a previous Manufacturing YA program do not need to repeat the Manufacturing Fundamentals Competencies.**

Manufacturing Fundamentals Competencies	Manufacturing Processes Competencies
<ol style="list-style-type: none"> <li>1. Focus on customer needs</li> <li>2. Use various instruments</li> <li>3. Operate tools and equipment safely</li> <li>4. Practice quality assurance principles</li> <li>5. Follow personal safety requirements</li> <li>6. Maintain a safe work environment</li> <li>7. Demonstrate professional role to be used in an emergency</li> </ol>	<ol style="list-style-type: none"> <li>1. Read technical drawings and work orders</li> <li>2. Interpret manufacturing processes</li> <li>3. Identify set up for manufacturing process</li> <li>4. Select tools and materials</li> <li>5. Assist production set up</li> <li>6. Support set up</li> <li>7. Operate equipment</li> <li>8. Monitor product and process specifications</li> <li>9. Process production documents</li> <li>10. Follow shutdown process</li> </ol>

## **REGISTERED APPRENTICESHIP BRIDGING OPPORTUNITIES**

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The following Registered Apprenticeship is available in this area:

- Industrial Manufacturing Technician
- Machine Repair

## **POST-SECONDARY PATHWAY OPPORTUNITIES**

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There are several post-secondary pathway opportunities in this area. The following is an example.

- Precision Machining Technology Technical Diploma



# Manufacturing Processes

Youth Apprenticeship

## ON-THE-JOB LEARNING PERFORMANCE STANDARDS GUIDE

### YOUTH APPRENTICE INFORMATION

Youth Apprentice Name
YA Coordinator
YA Consortium
School District

### SIGNATURES

The On-the-Job Learning Performance Standards Guide includes a list of competencies youth apprentices learn through mentoring and training at the worksite.

Instructions for the Worksite Employers/Mentors and School-Based or YA coordinators: This document should be reviewed with the employer/mentor, school-based or YA coordinator on a regular basis with the youth apprentice to record progress and plan future steps to ensure completion of the required competencies. Mentors, school-based/YA coordinator, and the apprentice sign below.

#### Employer/Mentor

##### 1<sup>st</sup> Evaluation (Required)

##### 2<sup>nd</sup> Evaluation (Required)

Employer/Mentor Signature	Employer/Mentor Signature
Employer/Mentor	Employer/Mentor
Business/Company	Business/Company
Date Signed	Date Signed

##### 3<sup>rd</sup> Evaluation (Optional)

##### 4<sup>th</sup> Evaluation (Optional)

Employer/Mentor Signature	Employer/Mentor Signature
Employer/Mentor	Employer/Mentor
Business/Company	Business/Company
Date Signed	Date Signed

#### School-Based and/or YA Coordinator

**1<sup>st</sup> Evaluation (Required)****2<sup>nd</sup> Evaluation (Required)**

School-Based and/or YA Coordinator Signature	School-Based and/or YA Coordinator Signature
School-Based and/or YA Coordinator	School-Based and/or YA Coordinator
School District or Organization	School District or Organization
Date Signed	Date Signed

**3<sup>rd</sup> Evaluation (Optional)****4<sup>th</sup> Evaluation (Optional)**

School-Based and/or YA Coordinator Signature	School-Based and/or YA Coordinator Signature
School-Based and/or YA Coordinator	School-Based and/or YA Coordinator
School District or Organization	School District or Organization
Date Signed	Date Signed

**Youth Apprenticeship****1<sup>st</sup> Evaluation (Required)****2<sup>nd</sup> Evaluation (Required)**

Youth Apprenticeship Signature	Youth Apprenticeship Signature
Youth Apprenticeship	Youth Apprenticeship
School District / High School	School District / High School
Date Signed	Date Signed

**3<sup>rd</sup> Evaluation (Optional)****4<sup>th</sup> Evaluation (Optional)**

Youth Apprenticeship Signature	Youth Apprenticeship Signature
Youth Apprenticeship	Youth Apprenticeship
School District / High School	School District / High School
Date Signed	Date Signed

## EMPLOYABILITY SKILLS (TO BE COMPLETED BY YA EMPLOYER/MENTOR)

All youth apprentices must demonstrate the key employability skills listed below in order to complete the YA program. They do so by earning at least a "Meets Expectation" rating in each. **At least two evaluations are required each year of a youth apprenticeship.** More columns are included below for those who choose to conduct more frequent reviews.

<b>1</b>	<b>Working to Meet Expectations:</b> Needs improvement; requires much assistance and supervision; rarely displays this behavior
<b>2</b>	<b>Meets Expectations:</b> Meets entry-level criteria; requires some supervision; often displays this behavior
<b>3</b>	<b>Exceeds Expectations:</b> Exceeds entry-level criteria; requires minimal supervision; consistently displays this behavior

Employability Skills	Rating			
	Initial	Mid Year 1	Mid Year 2	Final
<p><b>1. Develops positive work relationships with others.</b>  <i>Examples of qualities and habits that the employee might exhibit include:</i></p> <ul style="list-style-type: none"> <li>• Interacts with others with respect and in a non-judgmental manner</li> <li>• Responds to others in an appropriate and non-offensive manner</li> <li>• Helps co-workers and peers accomplish tasks or goals</li> <li>• Applies problem-solving strategies to improve relations with others</li> <li>• When managing others, shows traits such as compassion, listening, coaching, team development, and appreciation</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<p><b>2. Communicates effectively with others</b>  <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Adjusts the communication approach for the target audience, purpose, and situation to maximize impact</li> <li>• Organizes messages/information in a logical and helpful manner</li> <li>• Speaks clearly and writes legibly</li> <li>• Models behaviors to show active listening</li> <li>• Applies what was read to actual practice</li> <li>• Asks appropriate questions for clarity</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<p><b>3. Collaborates with others</b>  <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Works effectively in teams with people of diverse backgrounds regardless of sex, race, ethnicity, nationality, sexuality, religion, political views, and abilities</li> <li>• Shares responsibility for collaborative work and decision making</li> <li>• Uses the problem-solving process to work through differences of opinion in a constructive manner to achieve a reasonable compromise</li> <li>• Avoids contributing to an unproductive group conflict</li> <li>• Shares information and carries out responsibilities in a timely manner</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

<b>Employability Skills</b>		<b>Rating</b>			
<b>Competency and Rating Criteria</b>		<b>Initial</b>	<b>Mid Year 1</b>	<b>Mid Year 2</b>	<b>Final</b>
<p>4. Maintains composure under pressure <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Uses critical thinking to determine the best options or outcomes when faced with a challenging situation</li> <li>• Carries out assigned duties while under pressure</li> <li>• Acts in a respectful, professional, and non-offensive manner while under pressure</li> <li>• Applies stress management techniques to cope under pressure</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	
<p>5. Demonstrates integrity <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Carries out responsibilities in an ethical, legal and confidential manner</li> <li>• Responds to situations in a timely manner</li> <li>• Takes personal responsibility to correct problems</li> <li>• Models behaviors that demonstrate self-discipline, reliability, and dependability</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	
<p>6. Performs quality work <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Carries out written and verbal directions accurately</li> <li>• Completes work efficiently and effectively</li> <li>• Performs calculations accurately</li> <li>• Conserves resources, supplies, and materials to minimize costs and environmental impact</li> <li>• Uses equipment, technology, and work strategies to improve workflow</li> <li>• Applies problem-solving strategies to improve productivity</li> <li>• Adheres to worksite regulations and practices</li> <li>• Maintains an organized work area</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	
<p>7. Provides quality goods or services (internal and external) <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Shows support for the organizational goals and principles by own personal actions</li> <li>• Displays a respectful and professional image to customers</li> <li>• Displays an enthusiastic attitude and desire to take care of customer needs</li> <li>• Seeks out ways to increase customer satisfaction</li> <li>• Produces goods to workplace specifications</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	
<p>8. Shows initiative and self-direction <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Prioritizes and carries out responsibilities without being told</li> <li>• Responds with enthusiasm and flexibility to handle tasks that need immediate attention</li> <li>• Reflects on any unsatisfactory outcome as an opportunity to learn</li> <li>• Improves personal performance by doing something different or differently</li> <li>• Analyzes how own actions impact the overall organization</li> <li>• Supports own action with sound reasoning and principles</li> <li>• Balances personal activities to minimize interference with work responsibilities</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	

<b>Employability Skills</b>		<b>Rating</b>			
<b>Competency and Rating Criteria</b>		<b>Initial</b>	<b>Mid Year 1</b>	<b>Mid Year 2</b>	<b>Final</b>
<p>9. Adapts to change <i>Examples of qualities and habits that the employee might exhibit include . . . Shows flexibility and willingness to learn new skills for various job roles</i></p> <ul style="list-style-type: none"> <li>• Uses problem-solving and critical-thinking skills to cope with changing circumstances</li> <li>• Modifies own work behavior based on feedback, unsatisfactory outcomes, efficiency, and effectiveness</li> <li>• Displays a "can do" attitude</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	
<p>10. Demonstrates safety and security regulations and practices <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Follows personal safety requirements</li> <li>• Maintains a safe work environment</li> <li>• Demonstrates professional role in an emergency</li> <li>• Follows security procedures</li> <li>• Maintains confidentiality</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	
<p>11. Applies job-related technology, information, and media <i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Applies technology effectively in the workplace</li> <li>• Assesses and evaluates information on the job</li> <li>• Assesses training manuals, website, and other media related to the job</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	
<p>12. Fulfills training or certification requirements for employment <i>Examples of this requirement may include . . .</i></p> <ul style="list-style-type: none"> <li>• Participation in required career-related training and/or educational programs</li> <li>• Passing certification tests to qualify for licensure and/or certification</li> <li>• Participation in company training or orientation</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	
<p>13. Sets personal goals for improvement <i>Examples of this requirement may include . . .</i></p> <ul style="list-style-type: none"> <li>• Setting goals that are specific and measurable</li> <li>• Setting work-related goals that align with the organization's mission</li> <li>• Identifying strategies to reach goals</li> <li>• Reflecting on goal progress to regularly evaluate and modify goals</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	

## OCCUPATIONAL COMPETENCIES

### (TO BE COMPLETED BY YA EMPLOYER/MENTOR)

Youth apprentices must earn a rating of at least "MEETS EXPECTATIONS" in each competency by the conclusion of the apprenticeship. **Year 1:** A total of 17 occupational competencies. (All 7 Manufacturing Fundamentals competencies with no substitution, plus a minimum of 10 Manufacturing Processes competencies.) **Year 2:** A total of 8 Manufacturing Processes competencies using a minimum of one different process than learned in Year 1. Employers may substitute one of the Manufacturing Processes competencies with another occupationally appropriate skill per year and should write in the competency they are adding. Where necessary, skills can be simulated. **Youth must be evaluated on these competencies at least two times each year of their apprenticeship.** More columns are included below for those who choose to conduct more frequent reviews.

**Note: Students who completed a previous Manufacturing YA program do not need to repeat the Manufacturing Fundamentals Competencies.**

Manufacturing Fundamentals Occupational Competencies	Rating			
Competency and Rating Criteria	Evaluation Minimum Rating of 2 for EACH Check Rating			
	Initial	Mid Year 1	Mid Year 2	Final
<b>1. Focus on customer needs</b> <ul style="list-style-type: none"> <li>• identify internal and external customers impacted by the production process</li> <li>• satisfy internal and external customer expectations</li> <li>• collaborate with team</li> <li>• assist work site professional to keep internal and/or external customers informed of project progress and decisions that may affect them</li> <li>• define the impact of the Voice of the Customer</li> <li>• determine the impact of your work to the internal and external customer</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3
<b>2. Use various instruments</b> <ul style="list-style-type: none"> <li>• consider the degree of precision required by the part feature</li> <li>• choose correct measuring instrument for task</li> <li>• verify equipment is available for use and in working order</li> <li>• verify equipment preventative maintenance and/or calibration</li> <li>• inspect tools and work area for safety considerations</li> <li>• clean and adjust measuring instrument prior to use</li> <li>• use gauges, calipers, and micrometer instruments</li> <li>• use semi-precision and precision layout tools</li> <li>• use digital gauges, checking fixtures</li> <li>• use digital scales, thermometers</li> <li>• confirm measurement accuracy</li> <li>• record measurement correctly including unit of measurement at proper interval</li> <li>• calibrate, clean, and store measuring instruments properly</li> <li>• convert standard to metric – metric to standard measurement units</li> </ul>	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3	<input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3



Manufacturing Fundamentals Occupational Competencies	Rating			
Competency and Rating Criteria	Evaluation Minimum Rating of 2 for EACH Check Rating			
	Initial	Mid Year 1	Mid Year 2	Final
<b>3. Operate tools and equipment safely</b> <ul style="list-style-type: none"> <li>operate only tool/equipment that he/she is trained on</li> <li>choose correct tool/equipment for the task</li> <li>follow tool check list</li> <li>verify tool/equipment is available for use and in working order</li> <li>verify tool/equipment is current for preventative maintenance and/or calibration</li> <li>wear appropriate Personal Protective Equipment (PPE)</li> <li>inspect tool/equipment and work area for safety considerations</li> <li>prepare tool/equipment for safe operation</li> <li>operate tool/equipment safely with guarding devices</li> <li>monitor tool/equipment for safe operation while operating</li> <li>compare tool/equipment performance regularly to optimal equipment operations</li> <li>follow facility procedures for clean-up and shut down after use</li> <li>perform required preventative maintenance procedures</li> <li>report abnormal tool/equipment conditions</li> <li>properly shut down and label any tool/equipment that is not operating as expected</li> <li>follow Lock Out/Tag Out procedures as applicable</li> <li>document use and maintenance</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<b>4. Practice quality assurance principles</b> <ul style="list-style-type: none"> <li>inspect materials/piece/product at all stages of production</li> <li>identify quality or condition of materials/piece/product</li> <li>monitor materials, processes, equipment, tools, and products throughout the production process</li> <li>inspect final product/piece to ensure it meets specifications</li> <li>identify and segregate materials and/or product that do not meet specification</li> <li>communicate with work site professional if materials/product do not meet requirements</li> <li>document all quality checks</li> <li>participate in root-cause analysis of process/product</li> <li>take ownership of work</li> <li>collaborate with work site professional on corrective action</li> </ul>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Manufacturing Fundamentals Occupational Competencies		Rating			
Competency and Rating Criteria		Evaluation			
		Minimum Rating of 2 for EACH Check Rating			
		Initial	Mid Year 1	Mid Year 2	Final
<b>5. Follow personal safety requirements (safety)</b> <ul style="list-style-type: none"> <li>• participate in required safety training</li> <li>• follow all worksite guidelines for personal safety</li> <li>• apply principles of proper body mechanics</li> <li>• report exposures, injuries, near misses, or accidents, personal or to others immediately</li> <li>• locate key information on safety data sheets (SDS)</li> <li>• handle and dispose of any hazardous materials appropriately</li> <li>• operate equipment that he/she is trained on</li> <li>• adhere to equipment safety standards</li> <li>• visually inspect equipment before operation</li> <li>• wear required personal protective equipment (PPE) at all times</li> <li>• follow company emergency action plan</li> <li>• identify hazardous conditions and restricted areas in the workplace</li> <li>• avoid pinch points</li> <li>• be aware of surroundings</li> </ul>		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<b>6. Maintain a safe work environment (safety)</b> <ul style="list-style-type: none"> <li>• comply with posted safety warnings and symbols</li> <li>• identify unsafe conditions and/or work habits</li> <li>• report unsafe conditions and/or work habits</li> <li>• help maintain a clean and safe working environment free of debris and obstacles</li> <li>• maintain clean, organized work area</li> <li>• use hazardous materials according to company procedure</li> <li>• report any indications of insects or pests, if necessary</li> <li>• follow appropriate Lock out – tag out procedures</li> <li>• adhere to Occupational Safety and Health Administration (OSHA) safety guidelines</li> <li>• follow rules for operating equipment (Powered Industrial Vehicle-PIV)</li> <li>• identify applicable Emergency Stops</li> </ul>		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<b>7. Demonstrate professional role to be used in an emergency (safety)</b> <ul style="list-style-type: none"> <li>• participate in emergency safety simulations and drills</li> <li>• describe company’s policy and procedures for work site incidents, accidents, electrical, fire, tornado, bomb threats, robbery, hostage situations, and other emergency situations</li> <li>• identify the closest fire alarms and emergency exits</li> <li>• identify the fire extinguishers</li> <li>• identify appropriate alarms and procedures for using alarms</li> <li>• contact emergency personnel in the event of an emergency</li> <li>• contribute to emergency incident documentation</li> </ul>		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

<b>Manufacturing Fundamentals Occupational Competencies</b>		<b>Rating</b>			
<b>Competency and Rating Criteria</b>		<b>Evaluation</b>			
		<b>Minimum Rating of 2 for EACH Check Rating</b>			
		<b>Initial</b>	<b>Mid Year 1</b>	<b>Mid Year 2</b>	<b>Final</b>
<b>Comments:</b>					

## MANUFACTURING PROCESSES OCCUPATIONAL COMPETENCIES (TO BE COMPLETED BY YA EMPLOYER/MENTOR)

Enter the Manufacturing Processes practiced by the Youth Apprentice. A minimum of 1 process is required for each year. Year 2 must be different than year 1. Multiple processes per year are acceptable.

Year 1 Manufacturing Processes	Year 2 Manufacturing Processes
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Manufacturing Processes Examples	
<p><b>1. Casting</b> Examples: Metal, Sand, Die, Plaster, Slush, Static, Centrifugal, Continuous</p>	<p><b>5. Forming</b> Examples: Forging, Open/Closed Die, Extrusion, Pressing, Punching, Blanking, Drawing, Piercing</p>
<p><b>2. Conditioning</b> Examples: Heat Treating, Annealing, Hardening, Tempering</p>	<p><b>6. Jointing/Combining</b> Examples: Welding, Brazing, Soldering, Sintering, Adhesive Bonding, Thermosetting, Fastening, Stitching, Stapling, Press-Fitting, Chemical</p>
<p><b>3. Filing</b> Examples: Aseptic, Bottling, Canning</p>	<p><b>7. Molding</b> Examples: Power Compaction, Sintering, Injection, Blow, Liquid Resin, Thermoforming, Extrusion, Foam, Vacuum Forming, Compression, Shrink Filing</p>
<p><b>4. Finishing</b> Examples: Barrel, Sanding, Deburring, Buffing, Brushing, Polishing, Electropolishing, Chemical Cleaning, Ultrasound Cleaning, Vapor Degreasing, Painting, Coating, Dipping, Electroplating, Engraving, Plating</p>	<p><b>8. Separating</b> Examples: Cutting, Sawing, Centrifuging, Filtration, Pressing, Distillation, Evaporation, Fractionalization, Chemical</p>

<b>1</b>	<b>Working to Meet Expectations:</b> Needs improvement; requires much assistance and supervision; rarely displays this behavior
<b>2</b>	<b>Meets Expectations:</b> Meets entry-level criteria; requires some supervision; often displays this behavior
<b>3</b>	<b>Exceeds Expectations:</b> Exceeds entry-level criteria; requires minimal supervision; consistently displays this behavior

Occupational Competencies		Rating			
Competency and Rating Criteria		Evaluation - Minimum Rating of 2 for EACH Check Rating			
		Initial	Mid Year 1	Mid Year 2	Final
<b>1. Read technical drawings and work orders</b> <ul style="list-style-type: none"> <li>review technical drawings</li> <li>gather reference materials</li> <li>determine type of print and views used</li> <li>determine material specifications</li> <li>determine critical dimensions and tolerances</li> <li>analyze supplementary data</li> <li>determine product/job instructions and specifications</li> <li>interpret assembly/packaging symbols</li> <li>follow assembly/packaging procedures</li> </ul>		<b>Year 1 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
		<b>Year 2 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2		
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3		
<b>2. Interpret manufacturing processes</b> <ul style="list-style-type: none"> <li>interpret technical drawings for job task</li> <li>use appropriate terminology</li> <li>identify lines, views, symbols, and representations on the drawings</li> <li>interpret dimensions, tolerances, and scale on the drawings</li> <li>interpret threads, tapers, and shop notes on the drawings</li> <li>interpret assembly and packaging plan from a technical drawing</li> </ul>		<b>Year 1 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
		<b>Year 2 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2		
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3		
<b>3. Identify set up for manufacturing process</b> <ul style="list-style-type: none"> <li>review technical drawings, work orders, and/or procedures</li> <li>plan process sequencing</li> <li>identify tools and equipment needed for process</li> <li>identify set up</li> <li>verify correct set-up, production schedule, deadlines, and time frames</li> </ul>		<b>Year 1 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
		<b>Year 2 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2		
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3		
<b>4. Select tools and materials</b> <ul style="list-style-type: none"> <li>select tools and production equipment for process</li> <li>select appropriate work holding devices for work piece and equipment</li> <li>check raw materials needed against work order</li> <li>verify raw materials meet specifications</li> <li>gather all resources needed at the workstation</li> <li>notify work site professional of discrepancies</li> </ul>		<b>Year 1 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
		<b>Year 2 Rating</b>			
		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2		
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3		
<b>5. Assist production set up</b>		<b>Year 1 Rating</b>			

Occupational Competencies	Rating			
<p style="text-align: center;"><b>Competency and Rating Criteria</b></p> <ul style="list-style-type: none"> <li>assemble tools and production equipment</li> <li>verify production equipment is available for use and in working order</li> <li>verify production equipment is current for preventative maintenance and/or calibration</li> <li>calculate control settings</li> <li>check equipment fluid, air, pressure levels</li> <li>set production equipment parameters for the procedure</li> <li>secure work holding devices</li> <li>stage pieces and raw materials for production</li> </ul>	<b>Evaluation - Minimum Rating of 2 for EACH Check Rating</b>			
	<b>Initial</b>	<b>Mid Year 1</b>	<b>Mid Year 2</b>	<b>Final</b>
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<b>Year 2 Rating</b>				
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>6. Support set up</b></p> <ul style="list-style-type: none"> <li>verify set up meets process requirements and product specifications</li> <li>examine first piece/product or production run for visual and/or dimensional specification</li> <li>adjust piece/product</li> <li>verify repeatability of set up</li> <li>document set up procedure</li> </ul>	<b>Year 1 Rating</b>			
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<b>Year 2 Rating</b>				
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>7. Operate equipment</b></p> <ul style="list-style-type: none"> <li>wear required Personal Protective Equipment (PPE)</li> <li>follow equipment safety procedures</li> <li>operate equipment according to machine requirements</li> <li>monitor equipment for correct operation</li> <li>notify work site professional of operating discrepancies</li> </ul>	<b>Year 1 Rating</b>			
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<b>Year 2 Rating</b>				
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>8. Monitor product and process specifications</b></p> <ul style="list-style-type: none"> <li>monitor product for specification</li> <li>monitor process and equipment performance</li> <li>adjust process for quality and/or productivity</li> <li>take corrective actions to resolve problems</li> <li>replenish processing materials</li> <li>test product for function</li> <li>label products for compliance or non-compliance</li> <li>document quality control checks</li> <li>verify pieces meet specifications</li> <li>notify worksite profession of discrepancies</li> </ul>	<b>Year 1 Rating</b>			
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<b>Year 2 Rating</b>				
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>9. Process production documents</b></p>	<b>Year 1 Rating</b>			

Occupational Competencies	Rating			
<p style="text-align: center;"><b>Competency and Rating Criteria</b></p> <ul style="list-style-type: none"> <li>document processing data on items such as labor, quality, quantity, and time</li> <li>verify fabrication and production documentation is completed</li> <li>verify documentation is legible</li> <li>verify documentation is complete</li> <li>verify documentation is in appropriate format</li> <li>verify documentation is stored or forwarded</li> <li>verify pieces are stored or staged</li> </ul>	<b>Evaluation - Minimum Rating of 2 for EACH Check Rating</b>			
	<b>Initial</b>	<b>Mid Year 1</b>	<b>Mid Year 2</b>	<b>Final</b>
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<b>Year 2 Rating</b>				
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>10. Follow shutdown process</b></p> <ul style="list-style-type: none"> <li>review shutdown procedure</li> <li>stop production process</li> <li>verify all equipment is shut down safely</li> <li>identify process or equipment maintenance concerns with the production run</li> <li>report process or equipment maintenance concerns</li> </ul>	<b>Year 1 Rating</b>			
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
	<b>Year 2 Rating</b>			
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>Competency Substitute</b> (if you replaced a competency above, note the competency and rating)</p>	<b>Year 1 Rating</b>			
	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
	<b>Year 2 Rating</b>			
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	
<p><b>Comments:</b></p>				

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