

**Competency Standards**

**For**

**03-Months welder course**

**Shielded Metal Arc Welding (SMAW) (simple welding, window and door making)**

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## Title A. Follow Safety Rules

**Overview:** This Competency Standard identifies the competencies required to follow safety rules at workplace by welder. He will be expected to apply personal safety measures, apply workplace safety measures, apply tools & equipment safety measures and apply job safety measures at all times. His supporting knowledge regarding safety rules will be sufficient to provide his the basis for his work.

Unit of Competency	Performance Criteria	Knowledge	Tools & Equipment
A1. Apply personal safety measures	He will be able to:  P1. Select personal protective equipment. P2. Wear, adjust, and maintain personal protective equipment. P3. Ensure personal protective equipment is cleaned and stored in proper place.	He will be able to:  K1. Explain Importance of using Personal Protective Equipment (PPE) K2. Identify Protective clothing and equipment (PPE) to be worn and from where it can be obtained. K3. Explain the safe maintenance of PPEs.	Leather apron, safety gloves, safety goggles, welding helmet, safety shoes, ear plug, fume mask, dungaree
A2. Apply workplace safety measures	He will be able to:  P1. Apply following safety measures at workplace <ul style="list-style-type: none"> <li>• Ensure Ventilation</li> <li>• No Inflammable material nearby</li> <li>• Availability of Fire extinguishers</li> <li>• Secure electrical connections</li> <li>• Ensure earthing</li> <li>• No light reflection</li> </ul> P2. Proper housekeeping at workplace. P3. Ensure the availability of first aid box at the workplace	He will be able to:  K1. Explain Importance of safety at workplace and its implications. (effects).  K2. Explain housekeeping	Fire extinguisher, Tool box/bins, Safety covers, First aid box, fume extractor, lighting system, PPE

<b>Unit of Competency</b>	<b>Performance Criteria</b>	<b>Knowledge</b>	<b>Tools &amp; Equipment</b>
<p>A3. Apply tools &amp; equipment safety measures</p>	<p>He will be able to:</p> <p>P1. Apply safety measures to the following tools and equipment</p> <ul style="list-style-type: none"> <li>• Electric Welding machine and equipment</li> <li>• Mechanical cutting and beveling machines</li> </ul> <p>P2. Perform cleaning of tools and equipment before and after the job</p> <p>P3. Ensure safe placement of measuring and cutting tools</p>	<p>You will be able to:</p> <p>K1. Explain the importance of tools and equipment safety.</p> <p>K2. Describe the use of cleaning tools and equipment</p> <p>K3. Describe the importance of safe handling and placement of measuring and cutting tools</p> <p>K4. Explain Specific company procedures regarding tools and equipment safety.</p> <p>K5. Explain procedure for cleaning and storing of tools and equipment at workplace.</p>	<p>cleaning tools and equipment</p>

**TITLE B. Perform measuring, marking, cutting and grinding Operations**

**Overview:** This Competency Standard identifies to perform measuring, marking, cutting and grinding Operations according to work.

<b>Unit of Competency</b>	<b>Performance Criteria</b>	<b>Knowledge</b>	<b>Tools &amp; Equipment</b>
B1. Organize the Measuring ,marking, cutting and grinding tools	<p>He will be able to:</p> <p>P1. Arrange the measuring ,marking , cutting and grinding tools</p> <p>P2. Identify the measuring, markingcutting and grinding tools.</p>	<p>He will be able to:</p> <p>K1. Describe the measuring ,marking,cutting and grinding tools.</p> <p>K2. Describe unit conversion e.g</p> <ul style="list-style-type: none"> <li>• Meter into feet</li> <li>• Feet into inch</li> <li>• Inch into centimeter</li> <li>• Centimeter into millimeter</li> </ul>	<p>Steel tape,vernier caliper,sriber,divider ,grinder, files and punches etc.</p>

## TITLE C. Perform Shielded Metal Arc Welding (SMAW) Operations

**Overview:** This Competency Standard identifies to perform Shielded Metal Arc Welding (SMAW) Operations at workplace by welder in accordance with the job. He will be expected to organize the workplace for welding, prepare the job for welding, perform operations related to Shielded Metal Arc Welding (SMAW). His supporting knowledge regarding Shielded Metal Arc Welding (SMAW) operations will be sufficient to provide the basis for his work.

Unit of Competency	Performance Criteria	Knowledge	Tools & Equipment
C1. Organize the workplace for welding	<p>He will be able to:</p> <p>P1. Arrange the workplace according to the requirement of the job</p> <ul style="list-style-type: none"> <li>• Welding machine and accessories</li> <li>• Electric supply</li> <li>• Jigs and fixtures</li> <li>• Lighting</li> </ul> <p>P2. Apply the safety measures according to work</p> <ul style="list-style-type: none"> <li>• Ventilation</li> <li>• Fire extinguishers</li> <li>• First Aid box</li> <li>• Personal protective equipment</li> </ul> <p>P3. Prepare the required welding machine as per job requirement</p> <ul style="list-style-type: none"> <li>• Type of current (AC/DC)</li> <li>• Current polarity</li> </ul>	<p>He will be able to:</p> <p>K1. Describe the requirements of a workplace for welding the specific job</p> <p>K2. Describe the safety rules and guidelines</p> <p>K3. Describe the preparation of welding machine including</p> <ul style="list-style-type: none"> <li>• Type of current (AC/DC)</li> <li>• Current polarity</li> </ul>	Welding machine, grinder, chipping hammer, wire brush, electrode, jigs and fixtures, lights, exhaust fans, fire extinguishers, first aid box, PPE
C2. Prepare the job for welding	<p>He will be able to:</p> <p>P1. Arrange tools and cleaning chemicals</p>	<p>He will be able to:</p> <p>K1. Describe the usage of tools required for</p>	Grinders, cutters, beveling machine, file, measuring tools, , welding equipment,

Unit of Competency	Performance Criteria	Knowledge	Tools & Equipment
	<p>required for the job</p> <p>P2. Prepare job as per drawing</p> <ul style="list-style-type: none"> <li>• Job preparation</li> <li>• Job cleaning</li> <li>• Tacking of job</li> </ul> <p>P3. Apply specific safety precautions associated with welding job.</p>	<p>the job</p> <p>K2. Describe the importance of job preparation, cleaning and tacking</p> <p>K3. Describe Apply specific safety precautions associated with welding job.</p>	<p>electrodes, PPE</p>
<p>C3. Perform operations related to Shielded Metal Arc Welding (SMAW)</p>	<p>He will be able to:</p> <p>P1. Arrange the electrode</p> <p>P2. Adjust the electric current for welding</p> <p>P3. Perform welding as per job drawing</p> <ul style="list-style-type: none"> <li>• Pre heat the job, if required</li> <li>• Perform welding operation</li> <li>• Inter-pass cleaning</li> <li>• Inter-pass inspection</li> </ul> <p>P4. Apply specific safety precautions associated with welding job/process</p>	<p>He will be able to:</p> <p>K1. Determine the electrode required for the job</p> <p>K2. State the importance of pre heating</p> <p>K3. Describe how to adjust electrical parameters and their effects on weld</p> <p>K4. Perform welding operation as per drawing.</p> <p>K5. Apply specific safety precautions associated with welding job/process</p>	<p>Welding machine, electrodes, grinders, wire brush, chipping hammer, PPE,</p>

<b>Unit of Competency</b>	<b>Performance Criteria</b>	<b>Knowledge</b>	<b>Tools &amp; Equipment</b>
C4. Perform post welding operations	<p>He will be able to:</p> <p>P1. Apply post weld cleaning of the job following the process</p> <ul style="list-style-type: none"> <li>• Removal of slag</li> <li>• Removal of jigs and fixtures</li> <li>• Removal of spatters</li> </ul> <p>P2. Perform visual inspection and rectify any visual defects of weld area</p> <p>P3. Apply specific safety precautions associated with welding job/process</p>	<p>He will be able to:</p> <p>K1. State the importance of post weld cleaning of the job</p> <p>K2. Identify visual imperfections of weld</p> <p>K3. Apply specific safety precautions associated with welding job/process</p>	Welding machine, electrodes, grinders, wire brush, chipping hammer, PPE
C5. Perform Communication with others	<p>He will be able to:</p> <p><b>P1.</b> Communicate with the wenders/customers/colleagues related to job.</p> <p><b>P2.</b> Use media to communicate effectively (e.g: telephone).</p>	<p>He will be able to:</p> <p><b>K1.</b> Identify factors required to communicate effectively with the wenders/customers/colleagues related to job.</p> <p><b>K2.</b> Justify the appropriate use of electronic and relative media as per need</p>	Telephone