

## Ag Mechanics SMAW and GMAW Practicum Rubric

Use this rubric to score the SMAW and GMAW practicum of the Ag Mechanics Contest. Individuals who are a hazard to the safety of themselves or others will be disqualified.

| Criteria                                   | 4 points  | 3 points  | 2 points  | 1-0 points  | Points earned | Weight | Total Points |
|--|---|---|---|---|---------------|--------|--------------|
| <b>Safety</b>                              | All PPE worn for the duration of the event, including non-mesh footwear. Workplace cleaned. Accepted safety practices are strictly adhered, including handling hot metal with pliers. Yell "cover" prior to striking an arc to warn others. | PPE is worn for the majority of the event, including non-mesh footwear. Accepted safety practices are mostly adhered. | PPE is worn for the majority of the event, including non-mesh footwear. Accepted safety practices are moderately adhered.<br><br>Single minor safety infraction. Lack of clean workspace. | Improper Use of PPE. More than one reminder to wear PPE. Accepted safety practices are moderately adhered. Two or more minor safety hazards present. Lack of clean workspace. |               | x5     |              |
| <b>Weld width and height</b>               | Beads are uniform and proper bead width as specified, the full length of each weld. Has a uniform appearance.   | Moderately maintains uniform width and height. Shows some small blemishes along the weld                              | Erratic thickness throughout the weld, however will still bond base metal.  | Weld is cut off in places, with no uniformity. Shows very narrow and very wide, low and high uniformity.  |               | x2     |              |
| <b>Face of bead</b>                        | Has proper reinforcement. Is not excessive or inadequate. A proper uniform weave pattern is evident.  | Moderate uniform weave pattern, with minor variations.  | Slightly consistent weave pattern with considerable variations.   | Inconsistent weave pattern is highly erratic with evidence of ever-changing travel speed and weave motion.  |               | x3     |              |
| <b>Toes of bead and base metal tie-in</b>  | Toes are smooth, blending in to the base metal. No undercutting is evident. Weld does not float on surface of base metal.   | Moderate blending of toes with slight undercutting. Strength of the weld is still strong                              | Considerable undercutting along one toe. The other toe is adequately blended and tied in well.  | Metal is burned through, or, weld has no connection to metal, or both toes of the bead are considerably undercut.   |               | x3     |              |
| <b>Penetration</b>                         | Proper bead penetration is evident by fusion heat indicators on the base metal  | Weld penetrates deep but does not re surface through the bottom of jointed welds                                      | Weld is uneven in penetration depth, lacks uniformity along weld length.  | Weld floats on top of the metal, showing no penetration, providing no strength to the joint.  |               | x5     |              |
| <b>Beginning and ending of welded bead</b> | SMAW – Proper arc strike and preheating. Proper crater size. GMAW – Proper start and crater size.   | Weld ending is full but shows some tapering and a crater present  | Crater distinctly present at the end of the bead.   | Metal is burned through at the end.   |               | x2     |              |
| <b>Proper electrode and position</b>       | Correct electrode selection and weld position performed as given in the instructions.   | N/A   | N/A   | Improper weld position or improper electrode used.  |               | x5     |              |
| <b>Total (Please Score Here)</b>           |   |   |   |   |               |        |              |

Total Points \_\_\_\_\_

## Ag Mechanics Oxy-fuel Practicum Rubric

Use this rubric to score the SMAW and GMAW practicum of the Ag Mechanics Contest. Individuals who are a hazard to the safety of themselves or others will be disqualified.

| Criteria  | 20-16 points  | 15-11 points   | 10-6 points   | 5-0 points   | Total Points |
|---|---|--|---|--|--------------|
| <b>Safety</b>   | All PPE worn for the duration of the event, including non-mesh footwear. Workplace cleaned. Accepted safety practices are strictly adhered, including proper handling of the torch and handling hot metal with pliers. Metal cooled properly. | PPE is worn for the majority of the event, including non-mesh footwear. Accepted safety practices are mostly adhered. Slight mishandling of the torch. Area not entirely cleaned. Metal moderately cooled and safe to touch. | PPE is worn for the majority of the event, including non-mesh footwear. Accepted safety practices are slightly adhered. Great mishandling of the torch. Metal is still extremely warm and unable to handle without tools or gloves. | Improper Use of PPE. More than one reminder to wear PPE. Accepted safety practices are neglected. Two or more safety hazards present. Lack of knowledge or experience to safely and properly operate a torch. Lack of clean workspace. Metal is unsafe to handle without tools and gloves. |              |
| <b>Item dimensions</b>  | Item cut(s) exhibit all the required dimensions within 1/8" tolerance.  | Item cut(s) exhibit all the required dimensions within 1/4" tolerance.   | Item cut(s) exhibit dimensions greater than 1/4" but less than 3/8" tolerance.  | Item cut(s) exhibit very little required dimensions and cut(s) are over 3/8" tolerance   |              |
| <b>Item features: Squareness, bevels, angles, piercing, holes, notches, shape</b> | Item features exhibit all the required specifications performed well within 1/8" tolerance. Item edges are sharp and straight, with drag lines near vertical and not very pronounced.   | Item features exhibit all the required specifications performed well within 1/4" tolerance. Insufficient pre-heat resulting in some gouging, or over-heating the top edge resulting in slight melting of the top edge over   | Item features exhibit all the required specifications performed well within 3/8" tolerance.   | Item features exhibit very little required specifications, or are over 3/8" tolerance.   |              |
| <b>Travel speed and torch setting</b>   | Torch flame setting, evidence of correct flame position, full depression of the cutting lever, and proper travel speed exhibited on all cuts.   | Torch flame setting slightly irregular, incomplete depression of the cutting lever. The top slightly melted over. Drag lines indicate the torch was leaned slightly too far.   | Torch flame setting irregular, incomplete depression of the cutting lever on the majority of cuts, improper travel speed exhibited in most areas. Travel speed too slow or too fast resulted in irregular drag lines.               | Torch flame setting highly irregular, incomplete depression of the cutting lever on most or all cuts, or improper travel speed exhibited in most or all areas, incomplete cut(s).  |              |
| <b>Slag/dross</b>   | None to very little slag is present outside of normal expectancies. Dross can be removed by scraping.   | Moderate slag remains after raking or scraping. Very little time and effort needed to mechanically remove it.  | The presence of slag remaining would require considerable time and effort to remove it.   | Highly excessive slag present. Excessive time and effort would be needed to remove it.   |              |
| <b>Total (Please Score Here)</b>  |   |  |   |  |              |

## Ag Mechanics Carpentry, Concrete and Masonry Structural Practicum Rubric

Use this rubric to score Carpentry, Concrete and Masonry structural practicums of the Ag Mechanics Contest. Individuals who are a hazard to the safety of themselves or others will be disqualified.

| <i>Criteria</i>                                 | <i>20-16 points</i>  | <i>15-11 points</i>  | <i>10-6 points</i>  | <i>5-0 points</i>   | <i>Points earned</i> |
|---|--|--|---|---|----------------------|
| <b>Safety</b>                                   | All PPE worn for the duration of the event. Workplace cleaned. Accepted safety practices are strictly adhered.                             | PPE is worn for the majority of the event. Accepted safety practices are mostly adhered. | PPE is worn for the majority of the event. Accepted safety practices are moderately adhered. One or more minor safety hazards present. Lack of clean workspace. | Improper use of PPE. More than one reminder to wear PPE. Accepted safety practices are vastly disregarded. Two or more safety hazards present. Lack of clean workspace. |                      |
| <b>Proper Use of Tools and Equipment</b>        | Use of tools as per the intended manufactured use.   | Minor use of tools that may be the wrong size, or out of tolerance.                      | Moderate use of tools that are not intended for the process done.   | Gross misuse, abuse or lack of experience or knowledge of tools.  |                      |
| <b>Proper Dimensions of Finished Product</b>    | Tolerance of ¼ inch or less.   | Tolerance greater than ¼", up to ½ inch.   | Tolerance greater than ½", up to 1 inch.  | Finished product more than one inch out of tolerance.   |                      |
| <b>Quality of Finished Work</b>                 | Finished product is structurally sound and contains great eye appeal.  | Finished product is structurally sound but is moderately deficient in eye appeal.        | Finished product may contain few deficits in structure, but eye appeal is overall lacking.  | Finished product has glaring structural deficits, and very little eye appeal.   |                      |
| <b>Directions, Plans and Processes Followed</b> | Plans followed as instructed using processes as instructed. If a structural diagram is provided, the finished product matches the diagram. | Plans and processes mostly followed with one or two minor changes.                       | Plans and processes somewhat followed with three or more minor changes.   | Plans and processes poorly followed resulting in a different product.   |                      |
| <b>Total (Please Score Here)</b>                |  |  |   |   |                      |

## Agriculture Mechanics Team Practicum Rubric

Use this rubric to score the team practicum of the Ag Mechanics Contest. Individuals or teams who are a hazard to the safety of themselves or others will be disqualified.

|                                  | Very strong Evidence of skill<br>5-4 points   | Moderate evidence of skill<br>3-2 points  | Weak evidence of skill<br>1-0   | Points earned | Weight | Total points |
|----------------------------------|---|---|---|---------------|--------|--------------|
| <b>Safety</b>                    | All team members practice appropriate safety procedures during entire activity.   | Most team members used proper safety techniques with one or two safety violations.  | Team did not employ safety procedures that should have been used during activity.   |               | X4     |              |
| <b>Communication</b>             | All team members effectively communicate with each other throughout the entire activity.  | Most team members communicate fairly effectively with each other during most of the activity.   | Communication between team members is ineffective and sporadic during the activity.   |               | X4     |              |
| <b>Work Distribution</b>         | Work was evenly distributed between all team members and all team members were employed at all times  | Work was distributed two to three team members, and these members were employed most of the time.   | Work was completed by only one team member with little employment of the other members.   |               | X2     |              |
| <b>Time Management</b>           | All team members managed their time efficiently.  | Most team members managed their time fairly efficiently.  | One (or no) team member managed their time efficiently.   |               | X2     |              |
| <b>Team Organization</b>         | Team started right away, had no down time and was not rushed at the end of the task.  | Team was delayed in starting, had down time and was somewhat rushed at the end of the task.   | Team delayed starting, had long down times and did not complete all tasks during the time allotted.   |               | X2     |              |
| <b>Quality of work</b>           | The end result of the team activity was completed to specs provided and fell within a 1/4" allowance of measurements. All components were functioning as indicated. | The final result lacked craftsmanship and fell between a 1/4"-3/4" tolerance. Most all components were functioning as indicated but 1-2 components were not functioning as desired. | The final result lacked craftsmanship and knowledge of skills necessary to complete task properly resulting in a 1" or greater error and/or more than 2 components of the practicum not functioning properly. |               | X6     |              |
| <b>Total (Please Score Here)</b> |   |   |   |               |        |              |