

Student Name \_\_\_\_\_ Instructor Name \_\_\_\_\_

High School or Vocational Center \_\_\_\_\_ Grade \_\_\_\_\_

**COMPETENCY RECORD FOR ARTICULATION**  
**Muskegon Community College**  
**Welding Technology**

**W 101A**  
**Basic Welding**  
**3 Credit Hours**

Basic Welding is designed for the learner who has no welding experience or limited welding experience. Subject material will focus on the theory of welding processes common to local industries. The welding and cutting processes covered will be: Oxyacetylene Welding (OAW), Oxyacetylene Cutting (OAC), Plasma Arc Cutting (PAC), heating and bending with the torch, Shielded Metal Arc Welding (SMAW), and Gas Metal Arc Welding (GMAW). Students will learn to set-up and operate welding equipment according to approved standards. Theory of each welding process will be covered in the classroom followed by practical experience in the lab. Lab projects will provide experiences in the fabrication of typical weld joints, and are based on relevant sections of the American Welding Society (AWS) SENSE Level 1 standard.

Please check below each skill the student has mastered as described, with 80 percent accuracy, or with an A or B grade. The skills needed for articulation of each course are listed.

Task	Satisfactory	Unsatisfactory
<b>SAFETY IN THE WELDING SHOP</b>		
Apply school policies and procedures		
Apply shop safety rules and procedures		
Apply fire safety rules and procedures		
Apply electrical safety rules and procedures		
<b>OXYACETYLENE (OAW)</b>		
Set up an oxyacetylene welding station		
Light and adjust the torch to the correct flame(s)		
Carry a puddle without filler rod		
Carry a puddle along a joint to form an edge weld w/o rod		
Carry a puddle with filler rod		
Construct a butt joint with filler rod in the flat position		
Construct a lap joint with filler rod in the flat position		
Construct an inside corner with filler rod in the flat position		

<b>Task</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>
Braze a stringer bead with brazing rod and flux in the flat position		
Braze a butt joint with brazing rod and flux in the flat position		
Perform the operation of capillary action on the butt braze joint		
<b>GAS TUNGSTEN ARC WELDING (GTAW)</b>		
Set up the welding power source for the GTAW process		
Determine the correct shielding gas pressure and set as required		
Select and prepare the tungsten electrode for welding		
Assemble the GTAW torch		
Establish and maintain the arc		
Carry a puddle without rod on mild steel		
Weld a stringer bead with rod in the flat position		
Weld a butt joint with rod in the flat position		
Weld a "T" joint with rod in the flat position		
<b>OXY-FUEL (FLAME) CUTTING (OFC)</b>		
Identify terms and components of an oxy-fuel cutting station		
Determine correct pressures and tip size for the cutting operation		
Set up the oxyacetylene station for the cutting operation		
Light and adjust the torch to the correct flame adjustment for the type of base metal to be cut		
Manually lay out and cut straight lines		
Lay out and cut angles		
Lay out and cut circles		
Lay out and pierce holes		
Lay out and cut patterns		
Lay out and cut beams, angles, and channel iron		
Lay out and cut pipe		
Lay out and cut square and round solid bar stock		
<b>PLASMA ARC CUTTING (PAC)</b>		
Set the machine up for the cutting operation		
Inspect/replace torch parts for the cutting operation		
Straight cut ¼" thick mild steel		
Radius cut ¼" thick mild steel		

Task	Satisfactory	Unsatisfactory
Pierce and cut a 3" diameter hole in 1/4" mild steel		
Straight cut 16 gage mild steel		
Straight cut 16 gage stainless steel		
Straight cut 1/16" aluminum		
Lay out and cut square and round solid bar stock		
<b>SHIELDED METAL ARC WELDING (STICK)</b>		
Explain the numbering system on the metallic electrode		
Explain the applications of DCRP, DCEP and AC		
Set-up the shielded metal arc welding machine		
Adjust the amperage to match the type of electrode		
Strike and maintain the arc		
Weld straight stringer beads		
Weld weave bead motions		
Weld scratch and tap tacks		
Perform the operation of restarts		
Construct a butt joint in the flat position		
Construct a lap joint in the flat position		
Construct a tee joint (inside corner) in the flat position		
Perform the operation of whip and pause (flip motion)		
Pad a surface of 10-12 sq. in.		
<b>GAS METAL ARC WELDING (GMAW)</b>		
Set up the power source for the GMAW process		
Set up the wire feeder for the GMAW process		
Determine the proper shielding gas and flow specifications		
Set the current CFH for the shielding gas		
Weld a stringer bead with 100% penetration on mild steel		
Weld a butt joint with 100% penetration on mild steel		
Weld a "T" joint on mild steel		
<b>COGNATE TASKS</b>		
Read and interpret blueprints		
Interpret fillet-welding symbols on drawings		
Interpret groove-welding symbols on drawings		

Task	Satisfactory	Unsatisfactory
Identify specialty welding symbols (plug, slot, surfacing, flange, spot/projection, weld all around and field weld symbols)		
Select the correct SMAW electrode for the application		
Select the correct welding process to produce structurally sound and efficient welds		
Operate power hand tools		
Operate stationary power tools		
Know the difference between a reactive and non-reactive shielding gas		
Select the correct power source type for the welding process being used		
Identify the parts of a typical weld		
Evaluate welds to determine if they meet the criterion of a good, sound weld		

Instructor's Signature \_\_\_\_\_ Date \_\_\_\_\_