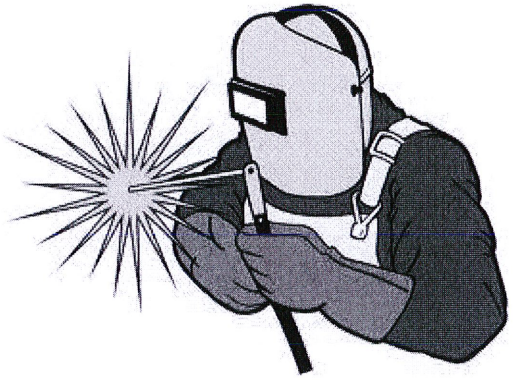
Welding 10

PART III



Student Learning Guide

Student Name:_____

Activities Time Line

Student Name:_____

Class	Activity Number	Activity Name
1	1	Gas Tungsten Arc Welding Questions
2	1	Gas Tungsten Arc Welding Questions
	Check Point Teacher Signature:_____	
3	2 VIDEO	Teach Yourself How To Tig Weld Steel (Part 1 of 4)
	3	Set up machine and lay some beads
	Check Point Teacher Signature:_____	
4-6	4 VIDEO	Teach Yourself How To Tig Weld Steel (Part 2 of 4)
	5	Outside Corner and Lap Joints
	Check Point Teacher Signature:_____	
7-8	6 VIDEO	Teach Yourself How To Tig Weld Steel (Part 3 of 4)
	7	Inside Corner and Fillet Joints
	Check Point Teacher Signature:_____	

9	8 VIDEO	Teach Yourself How To Tig Weld Steel (Part 4 of 4)	
	9	Out of Position Tig Welds	
	Check Point Teacher Signature:_____		
10-13	10	Complete Teacher-directed welding test	
	Check Point Teacher Signature:_____		
13-16	11	Project	
	Check Point Teacher Signature:_____		

*All videos can be found on youtube.com at the Chuckee2009 channel

GMAW Project

Name: _____

	1 – Beginning	2 – Approaching	3 – Meeting	4 – Mastery	Grade:
Penetration	Filler metal is on top of base metal, or burn through bottom of base metal. Hole(s) in base metal.	Shows evidence of penetration in some of the weld	Shows evidence of good penetration in most of the weld	Weld bead has sufficient buildup, and no burn through	
Width of Bead	Width of weld bead varies 1/8	Width of weld bead varies 3/32	Width of weld bead varies 1/16	Width of weld bead varies 1/32	
Height of Bead	Not consistent and very uneven	2-3 sections of the weld bead too high or too low	1 section of the weld bead too high or too low	Weld bead is half the thickness of the metal or more and does not vary more than 1/32	
Appearance	Ripples are uneven and rough	Most of the weld is rough and has some uneven ripples	Some of the weld is rough and has uneven ripples	Weld is smooth and ripples are evenly spaced	

Gas Tungsten Arc Welding

Refer to: Topic 7. Miller Process Training Series "Gas Tungsten Arc Welding"

The GTAW Process

1. What does GTAW stand for and give a description of what the GTAW process is.

2. What types of temperatures can the GTAW process produce?

3. Label the following diagram:

Advantages of The GTAW Process

3. List the three main advantages of the GTAW process:

4. List three of the disadvantages to using the GTAW process:

GTAW Fundamentals

5. Define both current and voltage:

6. Describe the heat distribution difference between DCEN and DCEP:

7. What does lift-arc refer to?

8. Why is scratch start generally not used for the GTAW process?

9. What are some advantages of Pulsed GTAW?

GTAW Accessories

10. Label the following diagram:

11. How are GTAW electrodes different than SMAW or GMAW electrodes?

12. What is tungsten?

13. Label the following diagram:

14. Describe how the tungsten should be prepared for DC welding:

Shielding Gas

15. What are the two primary shielding gases used?

16. What are typical flow rates for both gases?

Welding 10 Name: _____

Gas Tungsten Arc Welding *TEST*

Refer to: Topic 7. Miller Process Training Series "Gas Tungsten Arc Welding"

1. The GTAW process can produce temperatures of up to...
   - ○ a. 35, 000 degrees
   - ○ b. 25, 000 degrees
   - ○ c. 15, 000 degrees
   - ○ d. 50, 000 degrees

2. Which of the following is NOT advantages of the GTAW process:
   - ○ a. no slag
   - ○ b. no sparks
   - ○ c. no smoke or fumes
   - ○ d. no heat

3. What is the heat distribution for the DCEN process?
   - ○ a. 70% of heat transferred to workpiece
   - ○ b. 50% of heat transferred to workpiece
   - ○ c. 25% of heat transferred to workpiece
   - ○ d. 5% of heat transferred to workpiece

4. What is lift-arc?
   - ○ a. a more stable welding arc
   - ○ b. a method to start the welding arc
   - ○ c. a method to end the welding arc
   - ○ d. a dance performed during the welding process

5. What is pulsed GTAW?
   - ○ a. the arc goes on and off automatically
   - ○ b. the arc moves back and forth across the workpiece
   - ○ c. the welding amperage switched between high and low
   - ○ d. the arc changes colour

6. How is a GTAW electrode different than SMAW or GMAW electrodes?
   - a. it doesn't carry the electric current
   - b. it isn't a filler metal
   - c. it isn't a metal

7. What is tungsten?
   - a. a very hard gray steel
   - b. a very soft gray steel
   - c. a hard steel of different colours
   - d. a type of aluminum

8. How should the tungsten be prepared for DC welding?
   - a. it should have a blunted end
   - b. it should have a ball on the end
   - c. it should be sharpened to 15-30 degrees
   - d. it should be sharpened to 90 degrees

9. What the two primary shielding gases that are used for the GTAW process?
   - a. argon or helium
   - b. oxygen or acetylene
   - c. argon or acetylene
   - d. argon or CO2

10. What are the typical flow rates for both gases?
   - a. 15 or 30 cubic feet per hour
   - b. 5 or 50 cubic feet per hour
   - c. 1 or 2 cubic feet per hour
   - d. it doesn't make a difference