

## GTAW (TIG) COURSE CONTENT: 32HR Workforce Training

### GTAW (Gas Tungsten Arc Welding) SCHOLASTIC CONTENT: 10 HR

1. Identification of tungsten electrodes and their recommended usage.
  - 2% thoriaed tungsten-1.5%
  - lanthanated-Rare earth blend
  - Diameter selection
  
2. Matching the correct filler metal with the base metal.
  - ER 308
  - ER 309
  
3. Identify the parts of the TIG torch/TIG torch maintenance.
  - Torch size Selection
  - Collect Body
  - Collet
  - cup gasket
  - back cap
  
4. Fillet welds – how to properly weld and measure weldment.
  - Apply the correct amount of weld according to AWS code
  
5. Identification of basic weld symbols.
  - Field weld
  - fillet weld
  - plug weld
  - intermittent weld
  
6. Lap joint welds – how to properly weld and measure them.
  - Apply the correct amount of weld according to AWS code

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7. Welding gas mixtures and applications.
  - Argon gas verses Tri-mix (90/7.5/2.5)
8. Welding safety.
  - PPE equipment
  - electrical safety
  - fire safety
9. Explain the diffusion process of the welding gas.
  - Ceramic cup
  - Diffuser selection to properly shield weld zone
10. Torch articulation methods for various positions.
  - Methods to utilize in various positions when welding
11. Base metal preparation.
  - Avoiding contamination
  - joint fit-up
12. Welding machine set up for the various applications.
  - Amperage selection for metal thickness
  - Polarity selection for application
  - Check for gas leaks and breaks
  - electrical connection

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### **Hands on application: 1F (flat) position 11HR**

1. Plate weld on carbon steel
2. Lap joint on carbon steel
3. Tee joint on carbon steel
4. Plate weld on stainless steel
5. Lap joint on stainless steel
- 6 Tee joint on stainless steel

### **Hands on application: 2F (horizontal) position 11HR**

1. Plate weld on carbon steel
2. Lap joint on carbon steel
3. Tee joint on carbon steel
4. Plate weld on stainless steel
5. Lap joint on stainless steel
- 6 Tee joint on stainless steel

**At the end of the course there will be an opportunity to take an AWS welding test for 2 AWS welding certification in the 1F/2F position.**