



**Sul Ross Industrial Technology
Advanced Welding Technology**
2195-IT4307-001
Spring 2019



Instructor

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Office Hours: Tuesday, 5:00 to 6:00 P.M.
Or by appointment

Time and Location

M - W 6:00 pm – 9:00pm – Lab Room 108, Industrial Tech Building

Course Description

Introduction to Gas Tungsten Arc Welding. An introduction to the principles of gas tungsten arc welding (GTAW), setup/use of tools and equipment. Welding instruction in various positions and joint designs.

Course Objectives

1. Familiarize students with Gas Tungsten Arc welding process
2. Set correct amperage for each type and size tungsten
3. Set correct gas flow and rates TIG
4. Make a variety of GTA welds in different positions
5. Explain proper rod manipulation techniques
6. Demonstrate proper GTA welding torch manipulation techniques
7. Describe the role of appreciation banquets in agricultural applications.

End of Course Outcomes

Describe various joint designs; describe safety rules and equipment; describe effects of welding parameters in GTAW

Incomplete Grades

Strive to complete work on time. A grade of incomplete is given only if you can substantiate why work was not completed due to insurmountable schedule conflicts that occurred after final date of withdrawing from course. The incomplete grade must be removed the deadline during the following semester or it will convert to a final grade of F. Consult calendar in current college catalogue for removal date during the following semester period. It is not your instructor's responsibility to remind you of this date.

Grading Policy

Your final grade will be based on progress throughout semester in the areas of applied skills (projects)

and theory (examinations), waited as follows:

- | | |
|-----------------|-----|
| 1. Projects | 60% |
| 2. Examinations | 40% |

Your applied skills will develop as you progress through the Project List in this syllabus. The project list contains important accumulative projects, so your final applied skills grade will be based on the percentage of projects you complete.

Theory is also an important part of this course. While applied skills are invaluable for learning what to do, a welding technician must know the theory behinds what happens. Your instructor will provide appropriate written exams to measure your understanding of welding theory.

When calculating the above percentages, the following grading system is used at Sul Ross University:

A – Excellent	90% - 100%	grade point 4
B – Good	80% to 89%	grade point 3
C – Average	70% - 70%	grade point 2
D – Minimum Pass	60% to 69%	grade point 1
F – Fail	59% to 00%	grade point 0

Safety Policy

Persistently violate these rules, you will be considered safety risk and will be withdrawn from class:

1. Wear your safety glasses at all times.
2. Wear your ear plugs in areas of high noise levels.
3. Know the locations and proper use of fire extinguishers. They are located at the exit to every classroom and laboratory.
4. Do not weld or grind near oxy-fuel tanks, manifold connections, or other potential sources for gas leaks.
5. Beware of the signs of dehydration, especially during warm months: disorientation, confusion, light-headedness, flushed appearance, headache, exhaustion. Do not wait until these signs appear-<lrink fluids and take breaks regularly
6. Be mindful of proper ventilation in your work area.
7. When using portable grinders, be sure that you direct sparks away from others.
8. When using stationary pedestal grinders, be sure that the tool rest is adjusted as close to the grinding wheel as possible without touching it (1/16"). Always wear safety glasses when grinding and wire brushing. Do not wear gloves when using pedestal grinders.
9. Do not handle oxy-fuel equipment with oil or grease on your hands or clothing.
10. Do not wear loose or dangling clothing, jewelry, or hair when welding or handling materials.
11. Be sure that you have the proper shade of filter lens in your welding helmet or face shield.
12. Do not attach your ground lead to water pipes or electrical conduit.
13. When welding in a booth, keep your door closed. When welding in an open area, shield your arc with welding curtains. Always consider the line-of-sight between your arc and the eyes of bystanders.
14. To avoid bums to others, do not discard hot metal without first quenching it. Write "HOT" on objects too large to bring to the quench tank.
15. Report all accidents to your instructor without delay. If you suspect an unsafe condition or an equipment malfunction, bring it to you instructor's attention IMMEDIATELY.

Laboratory Policy

1. You must attend class at the time for which you are enrolled
2. When you complete a project, request approval from your professor. You will not be credited for unapproved projects.
3. Cleanup time is ten minutes before the end of class. Sweep your immediate work area and return equipment to tool room. Surrounding work areas must be cleaned with collaborative effort of all

students

4. Do not waste metal. Do not remove metal from the shop.
5. If there is an equipment malfunction, inform instructor immediately for repair and return to service.
6. Smoking/vaping is not permitted

Laboratory Projects (See Attached)