

SYLLABUS
PART I
EDISON COMMUNITY COLLEGE
WLD 103S MANUAL GAS TUNGSTEN ARC WELDING
3 CREDIT HOURS

COURSE DESCRIPTION

Offers a thorough technical presentation of gas tungsten arc welding, arc characteristics, and welding safety. Develop the skills necessary to make quality gas tungsten arc welds on 16 and 11 gauge mild steel, 16 gauge stainless steel, and 0.125" aluminum, using both direct and alternating current. Material is presented on the weld characteristics of carbon steel, stainless steel and aluminum.

COURSE GOALS

The student will:

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| 1. Produce quality fillet and square groove welds on thin carbon steel, stainless steel and aluminum in the flat, horizontal and vertical positions, using the gas tungsten arc welding process. The quality of welds is in accordance with the ASME Section IX Boiler and Pressure Vessel Code. |
| 2. Develop skills for Welder, Arc (DOT 810.384-014), Production Line Welder (DOT 819.684-010), Tack Welder (DOT 810.684-010) and the Arc Welding portion of Combination Welder (DOT 819.384-010). |
| 3. Prepare for the MIL STD 1595A test. |

CORE VALUES

The Core Values are a set of principles which guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce those Core Values whenever appropriate.

TOPIC OUTLINE

1. Introduction to Gas Tungsten Arc Welding
2. The Safety and Health of Welders
3. Preparation For Welding Startup, Equipment Adjustment, Shut-Down
4. Stringer Bead, Flat Position, Without and With Filler Metal
5. Fillet Weld, Lap Joint, Horizontal Position, Without and With Filler Metal
6. The Welding Characteristics of Carbon Steel
7. Fillet Weld, Outside Corner Joint, Flat Position, Without and With Filler Metal
8. Fillet Weld, Tee Joint, Horizontal and Vertical Position, Up With Filler Metal
9. Square Groove Weld, Butt Joint, Flat Position, With Filler Metal
10. Square Groove Weld, Butt Joint, Guided Bend Test
11. Fillet Weld, Lap Joint, Horizontal Position, Without and With Filler Metal
12. The Welding Characteristics of Stainless Steel
13. Fillet Weld, Outside Corner Joint, Flat Position, Without and With Filler Metal
14. Visual Inspection Test, Stainless Steel
15. Fillet Weld, Tee Joint, Horizontal and Vertical Position, Up With Filler Metal
16. Stringer Bead, Flat Position, With Filler Metal
17. The Effect of Equipment Adjustments On The Welding Arc
18. Square Groove Weld, Butt Joint, Flat Position, With Filler Metal
19. The Welding Characteristics of Aluminum
20. Fillet Weld, Lap Joint, Horizontal Position, With Filler Metal

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21. Fillet Weld, Outside Corner Joint, Flat Position, With Filler Metal
22. Fillet Weld, Tee Joint, Horizontal Position, With Filler Metal
23. Visual Inspection Test, Aluminum
24. Fillet Weld, Outside Corner Joint, Vertical Position, With Filler Metal
25. Fillet Weld, Tee Joint, Vertical Position, With Filler Metal

NOTES

This class is held at the Hobart Institute of Welding Technology in Troy, Ohio, during the day or at the Upper Valley Joint Vocational School in Piqua, Ohio, at night.

Students who have the necessary skills to pass the visual tests on stainless steel and aluminum may test out of this class.