



MASTER COURSE OUTLINE

Prepared By: Shawn McDaniel

Date: August 2013

COURSE TITLE

Gas Metal Arc Welding

GENERAL COURSE INFORMATION

Dept.: WLD

Course Num: 122

(Formerly:)

CIP Code: 48.0508

Intent Code: 21

Program Code: 814

Credits: 3

Total Contact Hrs Per Qtr.: 66

Lecture Hrs:

Lab Hrs:66

Other Hrs:

Distribution Designation:

COURSE DESCRIPTION (as it will appear in the catalog)

Students will learn to apply the Gas Metal Arc Welding (MIG) process on steel in all positions using the short circuit transfer mode and the spray transfer mode in the flat and horizontal positions.

PREREQUISITES

WLD 112

TEXTBOOK GUIDELINES

Text and materials as decided by welding faculty. (Gas Metal Arc Welding Handbook by William Minnick)

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.

1. Set up and adjust Gas Metal Arc Welding equipment for safe use with the short circuit and spray transfer modes.

INSTITUTIONAL OUTCOMES

COURSE CONTENT OUTLINE

At the completion of the course, the student will demonstrate competence in:

1. Perform safety inspection of equipment, work area and accessories
2. Make minor repairs to equipment and accessories
3. Set up a Gas Metal Arc Welding station for Short Arc transfer on plain carbon steel
4. Flat Position Short Arc: Make several stringer beads on carbon steel passing visual inspection
5. Flat Position Short Arc Make a pad of welds with 8-12 beads passing visual inspection
6. Flat Position Short Arc: Make lap weld on $\frac{1}{4}$ " carbon steel passing visual inspection, size inspection and break test
7. Flat Position Short Arc: Make a 1F single pass $\frac{1}{4}$ " fillet weld passing visual inspection and passing the fillet break test.
8. Flat Position Short Arc: Make a 1F $\frac{1}{2}$ " multi-pass fillet weld passing visual and size inspection
9. Flat Position Short Arc: Weld a 1G plate qualification test with backing. Passing visual inspection and bend test.
10. Horizontal Position Short Arc: Make several stringer beads on carbon steel passing visual inspection
11. Horizontal Position Short Arc Make a pad of welds with 8-12 beads passing visual inspection

12. Horizontal Position Short Arc: Make ¼ " lap weld on carbon steel passing visual inspection, size inspection and break test
13. Horizontal Position Short Arc: Make 2F single pass ¼" fillet weld passing visual inspection and passing the fillet break test.
14. Horizontal Position Short Arc:: Make 2F ½" multi-pass fillet passing visual and size inspection
15. Horizontal Position Short Arc: Weld a 3/8" 2G plate qualification test with backing. Passing visual inspection and bend test.
16. Vertical-Up Position Short Arc: Make several stringer beads on carbon steel passing visual inspection
17. Vertical-Up Position Short Arc Make a pad of welds with 8-12 beads passing visual inspection
18. Vertical Up Position Short Arc: Make ¼ "lap weld on carbon steel passing visual inspection, size inspection and break test
19. Vertical Up Position Short Arc: Make a 3F single pass ¼" fillet weld passing visual inspection and passing the fillet break test.
20. Vertical Up Position Short Arc:: Make a 3F ½" multi-pass fillet passing visual and size inspection
21. Vertical Up Position Short Arc: Weld a 3G plate qualification test with backing. Passing visual inspection and bend test.
22. Overhead Position Short Arc: Make several stringer beads on carbon steel passing visual inspection
23. Overhead Position Short Arc Make a pad of welds with 8-12 beads passing visual inspection
24. Overhead Position Short Arc: Make ¼ "lap weld on carbon steel passing visual inspection, size inspection and break test
25. Overhead Position Short Arc: Make a 4F single pass ¼" fillet weld passing visual inspection and passing the fillet break test.
26. Overhead Position Short Arc:: Make a 4F six pass ½" multi-pass fillet passing visual and size inspection
27. Overhead Position Short Arc: Weld a 3/8" 4G plate qualification test with backing. Passing visual inspection and bend test.
28. Set up a Gas Metal Arc Welding station for Spray Arc transfer on plain carbon steel
29. Flat Position Spray Arc: Make several stringer beads on carbon steel passing visual inspection
30. Flat Position Spray Arc Make a pad of welds with 8-12 beads passing visual inspection
31. Flat Position Spray Arc: Make ¼ "lap weld on carbon steel passing visual inspection, size inspection and break test
32. Flat Position Spray Arc: Make 1F single pass ¼" fillet weld passing visual inspection and passing the fillet break test.
33. Flat Position Spray Arc: Make a 1F ½" multi-pass fillet passing visual and size inspection
34. Flat Position Spray Arc: Weld a 1G plate qualification test with backing. Passing visual inspection and bend test.
35. Horizontal Position Spray Arc: Make several stringer beads on carbon steel passing visual inspection
36. Horizontal Position Spray Arc Make a pad of welds with 8-12 beads passing visual inspection
37. Horizontal Position Spray Arc: Make ¼ "lap weld on carbon steel passing visual inspection, size inspection and break test
38. Horizontal Position Spray Arc: Make a 2F single pass ¼" fillet weld passing visual inspection and passing the fillet break test.
39. Horizontal Position Spray Arc: Make a 2F ½" multi-pass fillet passing visual and size inspection
40. Horizontal Position Spray Arc: Weld a 3/8" 2G plate qualification test with backing. Passing visual inspection and bend test.

DEPARTMENTAL GUIDELINES *(optional)*

Grades will be calculated as follows:

50% Based on completing all course competencies.

50% Based on Lab Participation, Clean up on a daily basis, and following ALL Safety rules.

The grade awarded for the class is as follows:

95-100	4.0	93	3.8	91	3.6	89	3.4
94	3.9	92	3.7	90	3.5	88	3.3

87 3.2
86 3.1
85 3.0
84 2.9
83 2.8
82 2.7
81 5.6

80 2.5
79 2.4
78 2.3
77 2.2
76 2.1
75 2.0
74 1.9

73 1.8
72 1.7
71 1.6
70 1.5
69 1.4
68 1.3
67 1.2

66 1.1
65 1.0
60-64 0.7
0-59 0

DIVISION CHAIR APPROVAL

DATE