



SHIELD METAL ARC WELDING I — WELD 1111

A. Course Description

- **Credits:** 3.00
- **Lecture Hours/Week:** 0.00
- **Lab Hours/Week:** 3.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

This course develops the welding skills necessary for the Shield Metal Arc Welding (SMAW) process on carbon steel plate in flat and horizontal positions. IN addition, students develop skills in manual and mechanized Oxygen Fuel Cutting (OFC).

B. Course Effective Dates: 8/27/12 – Present

C. Outline of Major Content Areas

As noted on course syllabus

D. Learning Outcomes

1. Demonstrate and follow all safety practices
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3. Demonstrate angle grinder and belt sander setup and operation.
4. Demonstrate proper electrode control and manipulation for carbon steel welds.
5. Determine proper settings on the welding machine for SMAW welds.
6. Determine proper travel, speed, and work angles for SMAW welding for carbon steel welds.
7. Perform SMAW equipment setup and basic operation for carbon steel welds.
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9. Perform angle grinder and belt sander setup and operation
10. Perform arc blow control procedures.
11. Perform manual PAC cutting on 1/4" to 1/2" metal plate including piercing hole cuts
12. Perform string bead surfacing, 2F single pass, 2G single pass, and 2G multi pass welds in the horizontal position on carbon steel using E7018 and E6010 electrodes.
13. Perform string bead surfacing, 2F single pass, 2G single pass, and 2G multi pass welds in the horizontal position on carbon steel using E7018 and E6010 electrodes.

14. Perform stringer bead surfacing, 1F single pass, 1G single pass, and 1G multi pass welds on the flat position on carbon steel using E7018 and E6010 electrodes.
15. Perform stringer bead surfacing, 1F single pass, 1G single pass, and 1G multi pass welds on the flat position on carbon steel using E7018 and E6010 electrodes.
16. Visually inspect welds and cuts to determine if standards are met.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

F. Learner Outcomes Assessment

As noted on course syllabus

G. Special Information

None noted