A. Course Description

- **Credits:** 2.00
- **Lecture Hours/Week:** 1.00
- **Lab Hours/Week:** 1.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

This course covers welding safety, familiarization with oxyacetylene equipment and MIG welder operations. Prerequisites: None.

B. **Course Effective Dates:** 8/19/02 – Present

C. **Outline of Major Content Areas**

As noted on course syllabus

D. **Learning Outcomes**

1. Adjust MIG welding equipment
2. Describe MIG welder tip burn back, wire feed failure, and birdnesting.
3. Describe brazing
4. Describe different welding methods
5. Describe metal preparation procedures
6. Describe proper MIG gun angle and direction of travel for various weld joints.
7. Describe proper procedures to protect onboard electronics
8. Describe weld joints
9. Describe welding positions
10. Describe welding safety
11. Determine welder type, wire, and gas requirements
12. Determine work clamp location and attach.
13. Identify causes of weld defects
14. Identify weldable and non-weldable material
15. Perform 2 thick metal butt joint with backing welds
16. Perform 2 thick metal lap welds
17. Perform MIG flat butt weld
18. Perform MIG flat lap weld
19. Perform MIG flat plug weld
20. Perform MIG horizontal butt weld
21. Perform MIG horizontal lap weld
22. Perform MIG horizontal plug weld
23. Perform MIG overhead butt weld
24. Perform MIG overhead lap weld
25. Perform MIG overhead plug weld
26. Perform MIG vertical butt weld
27. Perform MIG vertical lap weld
28. Perform braze lap weld
29. Perform continuous MIG flat beads weld
30. Perform gas cutting
31. Perform gas lap weld
32. Perform gas outside corner weld
33. Perform gas puddles weld
34. Perform, on vehicle, 12 MIG lap welds
35. Perform, on vehicle, 2 MIG skip welds
36. Perform, on vehicle, 2 MIG stitch welds
37. Perform, on vehicle, 20 MIG plug welds
38. Perform, on vehicle, 4 butt joint with backing welds
39. Prepare metal for welding
40. Protect adjacent areas from welding operations
41. Set up MIG welding equipment
42. Set up gas welding equipment
43. Store, handle, and install gas cylinders
44. Use weld through coating
45. Weld damaged/torn sheet metal

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

F. Learner Outcomes Assessment
   As noted on course syllabus

G. Special Information
   None noted