

Minnesota State College Southeast

INDS 1628: Introduction to Welding Technologies

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course is an application-oriented introduction to the field of welding. Areas covered will be: basic weld metallurgy, oxy-fuel cutting, AC/DC Stick (SMAW) forms and basic fabrication techniques common to the welding field. Previous formal welding instruction or experience is not necessary. The student will have the opportunity to learn equipment set-up, safety, and operating factors necessary for producing quality welds. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 04/30/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Identify welding methods
2. Identify various welding procedures
3. Define properties of metals
4. Identify five basic joint designs
5. Identify welding positions
6. List welding inspection techniques
7. Identify weld defect types
8. Interpret certification procedures
9. List different power sources
10. Describe polarity theory
11. Identify electrical safety concepts
12. Identify electrode types
13. Explain AWS numbering system
14. Describe electrode classification
15. Identify proper eye protection
16. Adjust regulator pressure
17. Identify oxy-fuel safety procedures
18. Demonstrate emergency flashback procedures
19. Troubleshoot gas leaks
20. Clean cutting tips
21. Explain oxy-fuel flame adjustments
22. Adjust oxy-fuel flames
23. Perform neutral flame adjustment
24. Identify cutting equipment
25. Perform flat straight cutting
26. Describe metal preparation procedures
27. Perform metal preparation tasks
28. Adjust correct welding/cutting amperage
29. Describe electrode motions
30. Demonstrate correct electrode motions
31. Perform arc-striking techniques
32. Demonstrate arc length control skills
33. Manipulate electrode angles
34. Demonstrate travel speed skills
35. Make stringer bead job plates
36. Perform pad-building exercise
37. Explain oxy equipment maintenance requirements
38. Demonstrate oxy maintenance skills
39. Explain AC & DC equipment maintenance requirements
40. Demonstrate AC & DC equipment maintenance skills
41. Use safe work practices

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted