INDS 1630: Welding Technologies 3

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, electrode selection, AC/DC Stick (SMAW) forms and basic fabrication techniques common to the welding field. Welding positions of flat, horizontal, vertical, and overhead will be taught. GMAW and GTAW welding procedures will be introduced. The student will have the opportunity to learn equipment set-up, safety, and operating factors necessary for producing quality welds. (Prerequisites: INDS1628, INDS1629) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 01/01/1999 - 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. Perform quality SMAW welds in the flat position
 17. Perform quality SMAW welds in the horizontal position
 18. Perform quality SMAW welds in the vertical position
 19. Perform quality SMAW welds in the overhead position
 20. Examine GTAW welding operations
 21. Perform GTAW welds
 22. Examine GMAW welding operations
 23. Perform GMAW welds
 24. Explain AC & DC equipment maintenance requirements
 25. Demonstrate AC & DC equipment maintenance skills
 26. 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