MINNESOTA STATE COLLEGE SOUTHEAST

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