WLD 121 GMAW (MIG) FCAW/Plate

COURSE DESCRIPTION:

Prerequisite: DMA 010, 020, 030, DRE 096 or satisfactory score on placement test
Corequisite: None

This course introduces metal arc welding and flux core arc welding processes. Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW electrodes on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel with prescribed electrodes in the flat, horizontal, and overhead positions. Course Hours per Week: Class, 1; Lab, 3 Semester Hours Credit: 2

LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

a. List methods of metal transfer.
b. List parts of a gas metal arc welding setup.
c. Configure a constant potential, semiautomatic arc welding unit.
d. List and explain the major limitations of the flux cored arc welding process.

OUTLINE OF INSTRUCTION:

I. Gas metal arc welding equipment, setup and operation
- a. Metal transfer
- b. Filler metal specifications
- c. Wire melting and deposition rates
- d. Welding power supplies
- e. Molten weld pool control
- f. Equipment

II. Gas metal arc welding
- a. Setup
- b. Arc voltage and amperage characteristics
- c. Electrode extension
- d. Welding gun angle
- e. Effect of shielding gas on welding
- f. Metal preparation

III. Flux cored arc welding equipment, setup and operation
- a. Principles of operation
- b. Equipment
- c. Limitations
- d. Flux
- e. Welding techniques

IV. Flux core arc welding
- a. FCAW equipment setup
- b. Threading FCAW wire
- c. Thin gauge welding

V. Other constant potential welding processes
    a. Submerged arc welding
    b. Weld travel
    c. Electrode feed
    d. Contact tip
    e. Flux
    f. Arc starting

REQUIRED TEXTBOOKS AND MATERIALS:

Welding, Principles and Applications
Author: Larry Jeffus
Seventh edition
ISBN: 978-1-111-03917-2

Students will also need OSHA approved safety glasses. Steel toe work boots or shoes are preferred but not required.