

WLD 115 SMAW (stick) Plate

COURSE DESCRIPTION:

Prerequisite: DMA 010, 020, 030, DRE 096 or satisfactory score on placement test

Corequisite: None

This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, students should be able to perform SMAW fillet and groove welds on carbon plate with prescribed electrodes. 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. Identify the difference in welding with each of the three types of current.
- b. Identify welding machines according to their type.
- c. Select and set welding current.
- d. Evaluate the effect of changing arc length on a weld.
- e. Control undercut, overlap, porosity and slag inclusions when welding.
- f. Analyze the effect of electrode angle on a weld.

OUTLINE OF INSTRUCTION:

- I. Shielded metal arc equipment, setup and operation
 - a. Welding current
 - b. Types of welding power
 - c. Open circuit voltage
 - d. Operating voltage
 - e. Arc blow
 - f. Types of power sources
 - g. Generators and alternators
 - h. Rectifiers
 - i. Duty cycle
 - j. Welding cables
 - k. Electrode holders
 - l. Work clamps
- II. Shielded metal arc welding of plate
 - a. Shielded metal arc welding safety
 - b. Effect of too high or too low current settings
 - c. Electrode size and heat
 - d. Arc length
 - e. Electrode angle

- f. Electrode manipulation
- g. Positioning of the welder and the plate
- h. Stringer beads
- i. Square butt joint
- j. Lap joint
- k. Tee joint

REQUIRED TEXTBOOKS AND MATERIALS:

Textbook: Welding Principles and Application
8th edition
ISBN # 9781305494695

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