

Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for WLDT 61AL

BEGINNING ARC/FLUX-CORE

Effective: Fall 2008

I. CATALOG DESCRIPTION:

WLDT 61AL — BEGINNING ARC/FLUX-CORE — 2.00 units

Skills of Shielded Metal Arc (SMAW) and Flux-Core Arc (FCAW) welding in the flat, horizontal, and vertical positions to code specifications. Oxy-fuel flame, plasma, and carbon arc cutting.

2.00 Units Lab

Corequisite

WLDT 61A - Beginning SMAW and FCAW Theory
or

WLDT 61B - Advanced SMAW and FCAW Theory

Grading Methods:

Letter or P/NP

Discipline:

	<u>MIN</u>
Lab Hours:	108.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 4

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

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

- A. Identify and demonstrate safe use of basic equipment associated with:
 1. Shielded Metal Arc (SMAW)
 2. Flux Core Arc (FCAW)
 3. Plasma cutting
 4. Oxy-fuel cutting
 5. Carbon arc cutting
- B. Illustrate the uses and limitations of each process;
- C. Employ proper electrode and wire selection for application;
- D. Recognize common metals;
- E. Practice FCAW, SMAW welded plate steel in the flat, horizontal and vertical positions to AWS specifications;
- F. Apply circumferential welds in flat and rolled position;
- G. Specify the uses and limitations of Constant Current and Constant Voltage power sources;
- H. Practice Plasma and oxy-fuel cutting manually;
 - I. Employ Oxy-fuel cutting with a machine;
- J. Identify and demonstrate safe practices in the welding shop;
- K. Use simple blueprints to make parts;
- L. Operate safely welding support equipment;
 1. Grinder
 2. Shear
 3. Saw

V. CONTENT:

- A. Basic equipment associated with each welding/cutting process covered
- B. Uses and limitations of each process covered
- C. Electrode and wire selection for different applications
- D. Common metals
- E. FCAW, SMAW welded plate steel in the flat, horizontal and vertical positions to AWS specifications
- F. Circumferential welds in flat and rolled position
- G. Welding power supplies, AC and DC, constant current and constant voltage
- H. Plasma and oxy-fuel cutting
 - I. Machine cutting
- J. Safe handling and use

1. Shielded Metal Arc (SMAW)
2. Flux Core Arc (FCAW)
3. Oxy-fuel cutting
4. Plasma cutting
5. Carbon arc cutting
- K. Blueprint usage in the welding shop
- L. Welding support equipment safe use and application
 1. Shear
 2. Grinder
 3. Saw

VI. METHODS OF INSTRUCTION:

- A. Group demonstration
- B. Visual aids
- C. **Discussion** -
- D. Correlation with real world industrial applications
- E. **Lecture** -
- F. One-on-one, hands-on instruction

VII. TYPICAL ASSIGNMENTS:

A. Welding samples using different welding processes 1. Shielded Metal Arc Welding (SMAW) 2. Flux-core Arc Welding (FCAW) B. Welding samples using different welding joints 1. Butt joint 2. Tee joint 3. Lap joint 4. Corner joint 5. Edge joint C. Welding samples using different positions 1. Flat 2. Horizontal 3. Vertical D. Welding Samples using different materials 1. Carbon Steel 2. Stainless Steel E. Cutting samples using hand held oxy-acetylene cutting torch F. Cutting samples using semi-automated oxy-acetylene cutting torch G. Cutting samples using hand held plasma arc cutting torch

VIII. EVALUATION:

A. **Methods**

1. Class Participation
2. Lab Activities
3. Other:
 - a. Methods:
 1. Participation
 2. Workmanship samples
 3. Safe operation in the laboratory environment and the proper use of shop equipment

B. **Frequency**

1. Frequency:
 - a. Participation will be evaluated daily
 - b. Workmanship samples will be submitted for grading as completed over the duration of the semester
 - c. Safety and proper use of tools will be evaluated on a daily basis

IX. TYPICAL TEXTS:

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Personal Protective Equipment
- B. Safety Glasses (ANSI Z87.1)
- C. Leather welding gloves
- D. Long sleeve shirt or jacket
- E. Leather shoes or boots