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

Course Outline for WLDT 62BL

ADVANCED TIG/MIG WELDING SKILL

Effective: Fall 2008

I. CATALOG DESCRIPTION:
WLDT 62BL — ADVANCED TIG/MIG WELDING SKILL — 2.00 units

Advanced skills in TIG (GTAW) and MIG (GMAW) welding of ferrous and non-ferrous alloys in the horizontal, vertical and overhead positions to A.W. S. codes. Safety and proper use of TIG and MIG equipment, oxy-fuel welding and cutting, plasma cutting. Blueprint usage in welding shop environment. Pipe and tubing fit-up and welding.

2.00 Units Lab

Prerequisite
WLDT 62AL - Beginning GTAW and GMAW Skills Lab

Corequisite
WLDT 62A - Beginning GTAW and GMAW Theory
or

WLDT 62B - Advanced GTAW and GMAW Theory

Grading Methods:
Letter or P/NP

Discipline:

	MIN
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:

Before entering the course a student should be able to:

A. WLDT62AL

IV. MEASURABLE OBJECTIVES:

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

A. Identify and demonstrate safe use of advanced equipment associated with
   1. Gas Tungsten Arc Welding (GTAW)
   2. Gas Metal Arc Welding (GMAW)
   3. Plasma cutting
   4. Oxy-fuel cutting
   5. Carbon arc cutting
B. Catalog the uses and limitations of each process;
C. Categorize proper electrode and wire selection for application;
D. Identify common metals;
E. Demonstrate GTAW, GMAW welded plate steel, stainless steel and aluminum in all positions to AWS specifications;
F. Illustrate circumferential welds in all positions;
G. Explain the uses and limitations of constant Current and Constant Voltage power sources;
H. Demonstrate plasma and oxy-fuel cut manually in all positions;
I. Employ oxy-fuel cutting with a shape cutting machine;
J. Specify and apply safe practices in the welding shop;
K. Translate advanced blueprints to make parts;
L. Operate safely advanced welding support equipment.

V. CONTENT:
A. Advanced 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. GTAW and GMAW welded plate steel, stainless steel and aluminum in all positions to AWS specifications
F. Circumferential welds in all positions
G. Welding power supplies, AC and DC, constant current and constant voltage
H. Plasma and oxy-fuel cutting in all positions
I. Machine cutting of shapes
J. Safe handling and use
    1. Gas Tungsten Arc Welding (GTAW)
    2. Gas Metal Arc Welding (GMAW)
    3. Oxy-fuel cutting
    4. Plasma cutting
    5. Carbon arc cutting
K. Advanced blueprint usage in the welding shop
L. Advanced welding support equipment safe use and application

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

VII. TYPICAL ASSIGNMENTS:
A. Welding samples using different welding processes 1. Gas Tungsten Arc Welding (GTAW) 2. Gas Metal Arc Welding (GMAW) 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 3. Aluminum 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. Attendance and participation
            2. Workmanship samples
            3. Safe operation in the laboratory environment and the proper use of shop equipment
B. **Frequency**
    1. Frequency:
        a. Attendance and 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