

Las Positas College
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Course Outline for WLDT 67A

WELDING SKILLS LAB

Effective: Spring 2018

I. CATALOG DESCRIPTION:

WLDT 67A — WELDING SKILLS LAB — 2.00 units

Development and improvement of skills in Shielded Metal Arc (SMAW), Flux Cored Arc (FCAW), Gas Metal Arc (GMAW), and Gas Tungsten Arc (GTAW) welding.

2.00 Units Lab

Strongly Recommended

WLDT 61AL - Beginning SMAW and FCAW Skills Lab
with a minimum grade of C
or

WLDT 62AL - Beginning GTAW and GMAW Skills Lab
with a minimum grade of C
or

WLDT 70 - Introduction to Welding
with a minimum grade of C
or

WLDT 71 - Welding for the Arts
with a minimum grade of C

Grading Methods:

Letter or P/NP

Discipline:

- Welding

	MIN
Lab Hours:	108.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. WLDT61AL

1. Identify and demonstrate safe use of basic equipment associated with;
2. Illustrate the uses and limitations of each process
3. Employ proper electrode and wire selection for application
4. Use simple blueprints to make parts
5. Operate the following welding support equipment safely:

B. WLDT62AL

1. Identify and safely use equipment associated with;
2. Identify the uses and limitations of each process;
3. Identify proper electrode and wire selection for application;
4. Know and identify safe practices in the welding shop;
5. Know common shop hazards with respect to materials;
6. Use simple blueprints to make parts;
7. Safely operate welding support equipment:

C. WLDT70

1. Demonstrate safe and proper use of equipment;
2. Safely operate welding support equipment;

D. WLDT71

1. Operate safety in a typical welding environment;
2. Operate, understand usage and set-up of typical welding power supplies;
3. Demonstrate use of basic shop equipment and hand tools;

4. Develop skills using SMAW, GMAW, GTAW, FCAW, OFW, PAC and AAC in the flat position;
5. Demonstrate basic safety and hazards associated with metal fabrication;
6. Practice basic shop and welding equipment care and maintenance.

IV. MEASURABLE OBJECTIVES:

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

- A. Illustrate increased skill and knowledge development in the welding process chosen by student to study:
 1. Shielded Metal Arc (SMAW)
 2. Gas Tungsten Arc (GTAW)
 3. Gas Metal Arc (GMAW)
 4. Flux Core Arc (FCAW)
- B. Demonstrate safe and proper use of equipment;
- C. Practice skills in preparation for entry-level employment in the metal trades
- D. Demonstrate development and completion of self-directed skills development goals

V. CONTENT:

- A. Welding process SMAW, GTAW, GMAW and/or FCAW and allied processes;
- B. Safety and proper usage of welding equipment and allied processes;
- C. Simulated entry level employment testing using industry standards;
- D. Goal setting and completion of student selected, student led projects or procedures;
- E. Current career trends in the welding industry;
- F. American Welding Society nomenclature and symbols;
- G. Flat and Horizontal positions

VI. METHODS OF INSTRUCTION:

- A. **Demonstration** -
- B. Correlation with real world industrial applications and careers
- C. One-on-one, hands-on instruction
- D. Visual aids

VII. TYPICAL ASSIGNMENTS:

- A. Welding samples using different welding processes
 1. Gas Tungsten Arc Welding (GTAW)
 2. Gas Metal Arc Welding (GMAW)
 3. Shielded Metal Arc Welding (SMAW)
 4. 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
- D. Welding Samples using different materials
 1. Carbon Steel
 2. Stainless Steel
 3. Aluminum
 4. Magnesium
 5. Copper
 6. Titanium

VIII. EVALUATION:

A. **Methods**

1. Exams/Tests
2. Projects
3. Class Participation
4. Class Work
5. Home Work
6. Lab Activities

B. **Frequency**

1. Exams once per semester
2. Projects on an as assigned basis
3. Participation will be evaluated daily
4. Work samples will be submitted for grading as completed over the duration of the semester
5. Homework as assigned
6. Lab safety and proper use of tools will be evaluated on a daily basis

IX. TYPICAL TEXTS:

1. Jeffus, L. (2012). *Welding Principles and Practices* (11th ed.). Clifton Park, NY: Delmar.
2. American Welding Society (2012). *SPECIFICATION FOR WELDING PROCEDURE AND PERFORMANCE QUALIFICATION* (2012 ed.). Miami, Florida: American Welding Society.
3. American Welding Society (2015). *Structural Welding Code - Steel* (2015 ed.). Miami, Florida: American Welding Society.
4. Hoffman, D., Dahle, K., & Fisher, D. (2017). *Welding* (2 ed.). London, UK: Pearson.
5. Brown, W., & Brown, R. (2016). *Print Reading for Industry* (10th ed.). Tinley Park, IL: Goodheart-Willcox Company.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Personal Protective Equipment
- B. Safety Glasses (ANSI Z81)
- C. Leather welding gloves
- D. Long sleeve shirt or jacket
- E. Leather shoes or boots
- F. Welding Hood (preferred)

