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Course Outline for WLDT 67B

ADVANCED WELDING SKILLS LAB

Effective: Spring 2018

I. CATALOG DESCRIPTION:
WLDT 67B — ADVANCED WELDING SKILLS LAB — 2.00 units

Advanced 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 67A - Welding Skills Lab
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. WLDT67A
1. Illustrate increased skill and knowledge development in the welding process chosen by student to study:
   a. Shielded Metal Arc (SMAW)
   b. Gas Tungsten Arc (GTAW)
   c. Gas Metal Arc (GMAW)
   d. Flux Core Arc (FCAW)
2. Demonstrate safe and proper use of equipment;
3. Demonstrate development and completion of self-directed skills development goals

IV. MEASURABLE OBJECTIVES:

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

A. Illustrate advanced skill and knowledge development in the welding process chosen by the 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 appropriate to 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. Vertical and Overhead 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. Vertical
2. Overhead
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. Brown, W., & Brown, R. (2016). *Print Reading for Industry* (10th ed.). Tinley Park , IL: Goodheart-Willcox Company.
5. Hoffman, D., Dahle, K., & Fisher, D. (2017). *Welding* (2 ed.). London, UK: Pearson.

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)