

JEFFERSON COLLEGE

COURSE SYLLABUS

WLD245

ADVANCED WELDING TECHNIQUES I

5 Credit Hours

Prepared by
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Revised by
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December 2003

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WLD245 Advanced Welding Techniques I

I. CATALOGUE DESCRIPTION

Prerequisite: WLD244

5 Semester Hours Credit

Advanced Welding Techniques I deals with the practice of shielded metal arc welding and oxyacetylene welding of pipe. The course also includes joint preparation and joint design. (F,S)

II. GENERAL COURSE OBJECTIVES

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

- A. Explain how to set up and weld small diameter pipe using oxyacetylene and shielded metal arc welding processes.
- B. Develop qualities of craftsmanship and professionalism necessary to achieve professional standards in oxyacetylene and shielded metal arc pipe welding.

III. OUTLINE OF TOPICS

- A. Introduction to Oxyacetylene Welding of Pipe
 - 1. Oxyacetylene Welding of Pipe
 - a. Pipe and tubing
 - b. Preparation and fitup
 - c. Practice welds
 - 2. Oxyacetylene Welding of Pipe - Part I
 - a. 1G position
 - b. 2G position
 - 3. Oxyacetylene Welding of Pipe - Part II
 - a. 5G position
 - b. 6G 45⁰ angle position
 - 4. Filler Metal Selection
 - 5. Shielded Metal Arc Welding of Pipe
 - a. Pipe and tubing
 - b. Preparation and fitup
 - c. Practice welds
 - 6. SMAW of Pipe - Part I
 - a. 1G position
 - b. 2G position
 - 7. SMAW of Pipe - Part II
 - a. 5G position
 - b. 6G 45⁰ angle position

8. Filler Metal Selection
9. Testing and Inspection of Welds - Part I - quality control
10. Testing and Inspection of Welds - Part II
 - a. Root bends
 - b. Face bends
 - c. Tensile pulls

IV. UNIT OBJECTIVES

The student should be able to make a variety of welded joints in any position on small diameter pipe using oxyacetylene or shielded metal arc welding processes.

V. METHOD(S) OF INSTRUCTION

10% Lecture

90% Lab Performance

VI. REQUIRED TEXTBOOK(S)

Welding - Principles and Applications, Larry Jeffus

VII. REQUIRED MATERIALS

Safety Glasses
#1 Victor Welding Tip 1-W-1
Tip Cleaners
Chipping Hammer
Wire Brush
Cutting Goggles with #5 Lens
Welding Hood with #10 Lens
Soap Stone
Combination Square
Vise Grip
Flint Type Striker
Welding Gloves
Welding Jacket
Padlock for Locker
Boots for Shoe Protector

VIII. SUPPLEMENTAL REFERENCES

None

IX. METHOD OF EVALUATION

A. Distribution of the Final Grade

- 30% - Welding Manipulative Skills - Practical Welding Tests
- 30% - Examination of Welding Theory - Semester Tests and Chapter Reviews
- 20% - Instructor Evaluation - Attitude and attendance, emphasis being placed on positive work attitudes, initiative and cooperation.
- 20% - Final Examination

B. Attendance Policy

Attendance for this class is mandatory. According to the Attendance Policy listed in the Jefferson College Catalog, If a student misses more than 15 percent of the total time (including lecture and laboratory) that the class meets in a term, the student may be removed from the class. @

For this class, four (4) tardies constitute one absence.

C. Assignment of Final Letter Grade

- A - 90 to 100
- B - 80 to 89
- C - 70 to 79
- D - 60 to 69
- F - Below 59

X. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

XI. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website <http://www.jeffco.edu>).

XII. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more

of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.