

JEFFERSON COLLEGE

COURSE SYLLABUS

WLD246

ADVANCED WELDING TECHNIQUES II

5 Credit Hours

Prepared by
Jon Petryshyn

Revised by
Jon Petryshyn
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Alan Foster, Associate Dean, Career & Technical Education

WLD246 Advanced Welding Techniques II

I. CATALOGUE DESCRIPTION

Prerequisite: WLD245

5 Semester Hours Credit

Advanced Welding Techniques II deals with the practice of Gas Metal Arc Welding (MIG) and Gas Tungsten Arc Welding (TIG) of Pipe, also included is joint preparation and 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 MIG and TIG welding processes.
- B. Develop qualities of craftsmanship and professionalism necessary to achieve professional standards in MIG and TIG pipe welding.

III. OUTLINE OF TOPICS

- A. Introduction to Gas Metal Arc (MIG) and Gas Tungsten (TIG) Welding of Small Diameter Pipe
 - 1. MIG Welding of Pipe
 - a. Pipe and tubing
 - b. Preparation and fitup
 - c. Practice welds
 - 2. MIG Welding of Pipe - Part I
 - a. 1G position
 - b. 2G position
 - 3. MIG Welding of Pipe - Part II
 - a. 5G position
 - b. 6G 45⁰ angle position
 - 4. Filler Metal Selection
 - 5. Gas Tungsten Arc Welding of Pipe - Practices
 - 6. TIG Welding of Pipe
 - a. Joint preparation
 - b. Root

7. TIG Welding of Pipe
 - a. Backing Gas
 - b. Filler Metal
8. TIG Welding of Pipe
 - a. Hot pass
 - b. Filler pass
 - c. Cover pass
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 MIG and TIG 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 or 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.