

REEDLEY COLLEGE  
Manufacturing Technology  
MFGT 62 – Advanced Welding (Sch.# 58888) Spring 2022  
Rm.#: Ind. 11&19 --- M-W 7:00-1:15pm  
9 week class --- Mar 14 – May 11

**INSTRUCTOR:** Andrew Mancini  
Industrial Technology Building – Welding Department  
Office: Room 22  
Office Phone: (559) 494-3000, ext. 3211  
Cell: (559) 341-4657  
E-mail: [andrew.mancini@reedleycollege.edu](mailto:andrew.mancini@reedleycollege.edu)  
Office Hours:  
    MTW: 6:30 – 7 am, 3 – 4 pm  
    F: By appt only via Zoom (email to schedule)

## **COURSE DESCRIPTION**

MFGT 62 – Advanced Welding  
Units: 4  
Prerequisites: MFGT 61  
ADVISORIES: Mathematics 103

Advanced welding practices using SMAW, GMAW, GTAW, and FCAW. Objectives will be completed in flat, horizontal, vertical, and overhead positions on steel, aluminum, and stainless steel. A general overview of inspection, testing, and certification, and general fabrication concepts.

## **COURSE OBJECTIVES**

1. Review and use correct safety procedures for welding related equipment.
2. Demonstrate certification level welding skills in flat, horizontal, vertical, and overhead positions with SMAW, GMAW, GTAW, and FCAW.
3. Explain certification procedures of the AWS D1.1 welding code.
4. Identify and prepare joint assemblies used in welding fabrication.
5. Record data necessary to complete welding procedure specifications (WPS).
6. Recognize widely used industrial codes including AWS, ASME, and API.
7. Match code organizations with industry affiliation.
8. Contrast inspection techniques.
9. Employ repair procedures to correct weld defects.
10. Estimate the cost of a fabricated project.
11. Use welding skills to fabricate a project.
12. Participate in shop maintenance and repair activities.

## **EXPECTED STUDENT LEARNING OUTCOMES**

1. Produce certified weldments.
2. Fabricate products to industry standards.

*Student Learning Outcomes are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.*

### **III. COURSE CONTENT**

#### Introduction

Ch 1 - An Essential Skill

Ch 2 - Welding Safety

Ch 3 - Joint Design and Welding Terms

#### Weld Evaluation

Ch 45 - Materials & Fabrication Codes  
Plus AWS Handout

Ch 31 – Destructive Testing

Ch 32 – Nondestructive Testing

Ch 34 – Weld Discontinuities

Ch 35 - Welding Procedure Qualification

Ch 36 – Welder Performance Qualification

#### JOB APPLICATIONS, RESUME, INTERVIEW TECHNIQUES

\*content and order of activities may be changed as deemed necessary by instructor

### **IV. GENERAL METHODS OF INSTRUCTION**

This course is organized as a lecture/laboratory class with the emphasis on the development of manipulative welding skills. To promote student success the instructor will:

1. Provide lecture and lab demonstrations
2. Provide individual instruction
3. Encourage student practice to develop skills
4. Require competency-based lab objectives
5. Require homework and exams
6. Implement safety program

## V. GRADING SCALE

Quizzes	(10%)	100 pts
Homework	(10%)	100 pts
Projects & lab objectives	(70%)	700 pts
Final Exam	(10%)	100 pts
Participation, Time clock	(+ -%)	Negative pts

-----  
100%      1000 pts

A = 900 - 1000  
B = 800 - 899  
C = 700 - 799  
D = 600 - 699  
F = 0 - 599

- Homework must be turned in by the due date or it will be penalized 20%
- Extra points may be earned by doing shop projects or shop maintenance outside of scheduled class or lab time as arranged with Instructor.
- **HOME WORK WILL NOT BE ACCEPTED MORE THAN 1 CLASS LATE**
- **DAILY SKILLS OBJECTIVES MUST BE COMPLETED BEFORE FINALS WEEK**

### **ATTENDANCE & DAILY PARTICIPATION (It affects your grade)**

**Participation is very important. You must be in class in order to participate and complete all work.** If you miss a class, you need to make up the time. This may be done any time during open lab, day or evening, regardless of the instructor. (It is necessary to get permission from the instructor who is teaching the class in session.)

Your participation grade will be lowered as absences increase, regardless of total points.

Point deductions as follows

Absence = -30 pts.

Tardy = -10 pts. For each - Morning and break and lunch

- There are no excused absences
- If you miss more than 3 classes in first half of the class (4.5 weeks), you may be dropped.
- Excess of a total of 4 absences anytime during class will result in failing the class.
- Roll will be taken verbally and by use of the time clock.
- To receive daily credit, you must punch in during the 15 minute time period prior to class starting and after class releases.
- You are required to find out from the instructor any material missed during absence.
- Test may be made up at the instructor's discretion.

### **IMPORTANT DATES**

March	14 (M)	First day of class
March	22 (T)	Last day to drop (To avoid a “W”)
April 11 – April 15		Spring Break (No Class)
April	19 (T)	Last day to drop (Letter Grade will be assigned after this date)
May	11 (W)	Last day to work in shop (All lab assignments must be completed by this day)
May 16 – 20		Finals Week

**Final Exam: Friday, May 20<sup>th</sup> @ 9:30 am (Shop cleanup before Final @ 7am)**

## GENERAL POLICIES

- You are responsible to bring required materials to class. Textbooks and notebooks are required.
- You must wear safety equipment during lab (you will be counted absent if you do not have the equipment to work in lab.)
- **Cell phones** and similar devices should be silenced or left in lockers during class. Texting or taking calls during class is **not** allowed. 1<sup>st</sup> offense dismissed for the day, 2<sup>nd</sup> offense dismissed for a week.
- Lockers will be provided by the school for storage of projects and required materials. Students will provide locks.
- Supplies will be provided by the school for required objectives. Projects to be removed from the shop will require all material bills to be paid, as well as instructor’s permission.
- School policy prohibits smoking, dipping snuff, eating, and drinking in the classroom and in the lab.
- Any conduct that disrupts or distracts the class or is dangerous will not be tolerated.
- Willful violations of any safety rule that endangers the health of yourself or others in the class or shop will result in immediate dismissal from the class.
- Do not leave the classroom or shop area without the instructor’s permission.
- The content, order and policies in this syllabus may be changed if deemed necessary by the instructor.
- Visitors and children are not allowed in the lab area of the manufacturing shops.
- Cheating in any form will result in a zero for the assignment to dismissal from the class depending on circumstances.

\*If you have a verified need for an academic accommodation or materials in alternate media (i.e.: Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

## TEXT AND MATERIALS

Textbook: Welding Skills by B.J. Moniz & R.T. Miller, American Tech Publishers, Inc., 3<sup>rd</sup>edition. ISBN #0826930107 (amazon.com)

Pencil/pen, paper

3-ring binder with pockets

### Lab Equipment Required:

- Work Clothing – Preferably 100% cotton tight weave, good fitting without holes or frayed edges
  - Long sleeve shirt
  - Long pants (coveralls are OK)
  - Work shoes which cover your feet well. (Preferably leather work boots)
- Clear Safety glasses with side shields
- Welding gloves – two pair (one heavy weight and one light weight)
- Pliers to carry hot metal (Vise grip 10WR)
- Wire cutters for MIG wire
- Tip cleaner for torch
- Flint striker
- Soapstone or silver pencil
- Oxy-acetylene goggles with #5 lens (must be able to wear with safety glasses)
- Arc welding helmet with #10 lens (preferably flip front) -- auto-darkening is optional
- 10 clear replacement lenses for your helmet
- Leathers
- Chipping hammer
- Wire brush
- Tape measure
- Skull cap (welder’s cap)
- Ear Plugs (minimum of 10 pair)

## SUGGESTED SOURCES OF EQUIPMENT (in Fresno and surrounding areas)

### Air Gas

2320 E. Church Avenue 268-8651  
Visalia 525 N. Burke St. 733-3443 Visalia

### Fresno Oxygen & Welding Supply

245 M Street 233-6684  
2742 Clovis Avenue 292-1234  
6101 N. Blackstone 432-9353  
Visalia 2239 E.Main 733-2335 Visalia

### Praxair Gasses & Equipment

2701 E. Jensen 445-0131  
Hanford- 1051 E. 3rd St. 584-2982 Hanford  
Tulare- 2114 K St. 688-1739 Tulare

### Weco Supply Co.

3735 E. Ventura Avenue 268-0161

### WestAir Gases and Equipment

2929 E Dorothy Ave 486-8110  
10331 W Goshen Ave Suite B 622-6104 Visalia

### Valley Oxygen

760 E. Lacy Blvd. Hanford 587-1511 Hanford