

**MAG 41 56843**

**Introduction to Agricultural Welding**

**Syllabus**

**Instructor:**

**Office Hours:** Monday 2:00-3:00pm AGM 5 or by arrangement.

E-mail:

**Lecture Meeting:** Tuesday & Thursday 3:00 -3:50 LSH 1

**Lab Meeting:** Thursday, 4 – 6:50, LSH 1 Shop

**Units: 3**

**Course Description**

This course provides and introduction into the welding industry as it relates to the agricultural mechanics. Instruction in the areas of safety, welding processes, equipment and the properties of metal will be covered.

**Required Text:** **(By second class meeting)**

1. Deere Welding Book FMO John
2. Approved eye protection/safety glasses (Z87.1 A.N.S.I.)
3. Welding Hood With #10 Lenses
4. Oxyacetylene goggles or glasses with #5 Lenses
5. Approved footwear

**Student Learning Outcomes**

**Upon completion of this course student will be able to:**

* *Demonstrate the welding processes as they relate to the agricultural field*
* *Demonstrate the ability to properly and safely use an oxyacetylene apparatus to cut, weld and braze with*

**Course Objectives**

Be able to identify hazardous issues that pertain to the agricultural welding shop.

Be able to properly set and adjust a SMAW welding machine.

Be able to set and adjust a MIG welding machine.

Be able to perform welds in the flat position using E6011 rod.

Be able to perform welds in the flat position using E7018 rod.

Be able to properly set up and shut down the oxyacetylene apparatus.

Be able to properly demonstrate braze welding in the flat positions using the oxyacetylene apparatus.

Be able to properly demonstrate fusion welding in the flat positions using the oxyacetylene apparatus.

Be able to demonstrate the ability to clean and fit their welds.

Be able to demonstrate the ability to maintain welding machines and equipment in the agricultural shop.

**Course Outline**

The instructor will determine the order in which the following will be presented and developed. It is also probable that several skills may be served by the same assignment.

Introduction to safety

 Protective equipment

 Ventilation

 Fire Protection

 Arc Welding

 Oxyacetylene welding

Joint design and Terms

 Design Factors

 Controlling Distortion

 Weld Defects

Oxyacetylene Welding and Cutting

 Equipment

 Set-up and operations

 Cutting Plate Steel

 Piercing Holes

 Power Cutting

Shielded Metal Arc Welding (SMAW)

 Machines and Accessories

 Selecting the Electrode

 Striking the Arc

 Running Continuous Beads

 Surfacing

 Welding positions

Gas Metal Arc Welding (GMAW)

 Machines and Accessories

 Set-up and operation

 Running Beads

Properties of Metal

 Ferrous and Non Ferrous Metals

 Iron and Steel

 Alloy Metals

 Identification of Metals

Project Design and Construction

 Measurement

 Basics of Sketching and Drawing

 Basic Construction

**LABS:**

Arc welding Labs (all in the flat position)

1. LAB #1 E6011 – Pad
2. LAB #2 E6011 – Butt Joint Butt Weld
3. LAB #3 E6011– Lap Joint Fillet Weld
4. LAB #4 E6011– T-Joint Fillet Weld
5. LAB #5 E7018 – Pad
6. LAB # 6 E7018 – Butt Joint Butt Weld
7. LAB #7 E7018 – Lap Joint Fillet Weld
8. LAB #8 E7018 – T-Joint Fillet Weld

Oxyacetylene Welding/Cutting

1. LAB #9- 5- Beads pushing puddle
2. LAB #10 5- Beads with rod in the flat position
3. LAB #11 Lap Joint Fusion Weld
4. LAB #12 Butt Joint Fusion Weld
5. LAB #13 Tee Joint Fusion Weld
6. LAB #14 Cut Straight Line in plate steel with oxyacetylene torch
7. LAB #15 Pierce and cut specified hole and square in plate steal

MIG Welding (all in the flat position)

1. LAB #16 MIG – Pad
2. LAB #17 MIG – Butt Joint Butt Weld
3. LAB #18 MIG – Lap Joint Fillet Weld
4. LAB #19 MIG – T-Joint Fillet Weld

**Attendance**

Lecture: Attendance is required and roll will be taken at each class meeting. There is no difference between an “excused” or “unexcused” absence. A “tardy” is considered an absence unless the student contacts the instructor at the end of class to change the status from absent to tardy. Two tardies will count as one absence. Any student who misses more than two weeks of class meetings within the first 9 weeks of class may be dropped from the class by the instructor (i.e., class meets two times per week, 4 absences; class meets 1 time per week, 2 absences).

Lab: **Attendance in all labs is mandatory**. Students must make prior arrangements with the instructor to be excused from lab. At that time, the instructor will determine, if any, make-up work will be appropriate.

Tutoring: All students are required to attend one hour of tutoring for each MAG class he/she is enrolled in. There will be periodic checks on attendance and a point value will be assigned to your grade. This tutoring requirement is designed to greatly improve your grades and acquisition of the subject matter. Those students who truly utilize this time will vastly improve their grades and attainment of the skills and knowledge needed to be an equipment technician.

* Must use your ID to log in and out; this is important as it is how your time will be tracked.
* Must use this time to study. Ask for help on difficult content covered in class, and complete assignment/labs.
* This time is not for listening to music, Facebook, You-Tube videos, and just visiting fellow students.

Quizzes: There will be no make-ups for quizzes.

Tests: Make-up tests are limited to students who have made arrangements with the instructor prior to the required testing period or those students who have been excused by the Reedley College Dean of Admissions, Dr. Claudia Habib.

Time Clock: All students are required to punch in and out of shop class on a daily basis. Failure to do so will result in an absence. Students are expected to only punch their own cards and cannot, under any circumstances, punch another student’s card. Misuse of the time clock system can result in removal from the class.

**Grading Policy/Scales/Evaluation Criteria**

For maximum point consideration, all written assignments and term reports should be typed and double-spaced. Lecture assignments (homework) will be accepted late up to the test for that unit of the course; however, late assignments will be penalized 1/3 of the possible points. Late laboratory assignments turned in within one week of the required due date will be accepted with a penalty equal to 1/3 of the maximum points. Any lab assignment turned in after that time up to the last regular class meeting will be accepted with a 50% penalty.

\*Final exam is mandatory. Failure to participate will result in a non-passing grade.

Point Distribution: 90% = A, 80% = B, 70% = C, 60% = D, 59% & less = F

Assignments & Grades: Assignments/Quizzes 30%

 Midterms/Finals 10%

 Lab Assignments 50%

 Lab Participation 10%

**Cheating & Plagiarism**

In keeping with the philosophy that students are entitled to the best education available, and in compliance with Board Policy 5410, each student is expected to exert an entirely honest effort toward attaining an education. Violations of this policy will result in disqualification for the course.

**Accommodations for Students with Disabilities**

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.

**Work Ethic -** Most students are enrolled in college classes to obtain a quality job or to enhance their skills for advancement with their current employment situation. Employers look for a punctual, responsible individual who is prepared to go to work. Our goal is to replicate the workplace environment where a student can develop and demonstrate these desirable traits.

* Punctual: It is customary to arrive at least 5 minutes before work begins. Individuals will be terminated if they are not punctual.
* Responsible: It is expected than an employee work every scheduled work day. Individuals will be terminated if they are not responsible.
* Prepared: It is expected that an employee be prepared with he/she arrives for work. Students must have work shirts, safety glasses, and appropriate footwear to participate in the laboratory. If a student is not prepared, he/she cannot participate and will receive a zero (see “responsible”).

**Language -** English is expected to be spoken in class for the following reasons:

* All course content and materials are presented in English and class discussions all take place in English.
* All lab activities are conducted in groups and must have effective communication between all group members.
* Shop activities can be hazardous and it is vital that instructors receive feedback in English to ensure safe practices.
* This policy is designed so that instructors and all students may communicate in a common language.
* All individuals must have freedom of expression and are allowed and encouraged to communicate in the language of their choice outside of class times, including breaks.

**Behavioral Standards**

* Each student is responsible for his/her own work. Written assignments are not group assignments and no credit will be awarded for students who turn in the same work. Students suspected of cheating on tests and quizzes will receive no credit for that particular assignment and may be removed from the class.
* Turn **off** cell phones when in the classroom or shop. **Texting** is not allowed in class.
* Sleeping is **not** allowed in class. If you cannot stay awake you should go home and get some sleep, or try going to bed at an earlier hour.
* There is **no smoking** allowed in classrooms, shops, or school vehicles. Any smoking needs to take place in designated areas away from equipment and flammable liquids.
* This class is set for the semester. All doctor’s appointments, interviews, meetings with counselor, and other types of appointments should be scheduled during your time outside of class.

**Important Dates**

* Last day to drop and qualify for a refund August 24
* Labor Day September 3
* Last Day to drop a class and not receive a letter grade October 12
* Veterans Day                      November 12
* Thanksgiving November 22 & 23
* Finals Week December 10 – 14

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| **FINAL EXAM: ~~Monday, May 16 @ 8 a.m.(~~ Check for Day and time)****\*Final exam is mandatory. Failure to participate will result in a non-passing grade.** |