**MAG 41 Syllabus**

**Introduction to Agricultural Welding**

**Fall 2017 – Code: 57723**

**Combo Lecture/Lab T, TH 4:00 – 6:30 pm IND 11**

**Instructors:** Robert Calvert **Office Hours:** Tuesday & Thursday

Office: AGM 5 3:00-4:00

Office #: 304-7554

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**Course Description** 3 Units

This course provides and introduction into the welding industry as it relates to 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.*

**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.

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”).

**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.
* Reedley College is a tobacco free campus. Smoking, chewing, and vaping are all prohibited on campus.
* 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 25
* Labor Day September 4
* Last Day to drop a class and not receive a letter grade September 1
* Veterans Day                      November 10
* Thanksgiving November 23 & 24
* Finals Week December 11 – 15

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| **FINAL EXAM: Thursday, December 14, 2017 @ 4 pm**    **\*Final exam is mandatory. Failure to participate will result in a non-passing grade.** |