Spring 2016

MAG 41
Introduction to Agricultural Mechanics
Syllabus

Instructor: Gregory Ravy

Office Hours: Monday 3:30-4:30
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Class Meeting: Monday, Tuesday, Friday 7:55-8:53am
Wednesday Block 8:30-10:20, Thursday Block 9:15-10:55am

Units: 03

Course Description: This course provides an introduction into the welding industry as it relates to agricultural mechanics. Instruction in the areas of safety, welding processes, equipment, and the properties of metals will be covered. (2 lecture, 3 lab hours).

Course Goals:
- Upon completion of this course, students will be able to: Demonstrate the welding processes as they relate to the agricultural field.
- Demonstrate the ability to properly and safely use the oxyacetylene apparatus to cut, weld and braze with.

Primary Learning Outcomes:
The student will:
- Identify hazardous issues that pertain to the agricultural welding shop.
- Properly set and adjust a SMAW welding machine.
- Set and adjust an MIG welding machine.
- Perform welds in the flat position using E6011 welding rods.
- Perform welds in the flat position using E7018 welding rods.
- Properly set up and shut down the oxyacetylene apparatus.
- Properly demonstrate braze welding in the flat position using the oxyacetylene apparatus.
- Properly demonstrate fusion welding in the flat position using the oxyacetylene apparatus.
- Demonstrate the ability to properly clean and fit their welds.
- Demonstrate the ability to maintain welding machines and equipment in the agricultural shop

Secondary Learning Outcomes:
The student will:
- Work with others in a shop environment
- Work with and set up various welding machines for different tasks

- Work with metal shearing and cutting equipment
- Work with measuring tools and perform simple assembly/repair tasks
- Work with hand held power tools

Lab Dress: Work clothes, shop coats, or coveralls. No loose clothing. Long hair must be restrained. Closed toe shoes are required. Safety glasses will be worn at all times.

Required Classroom/Lab Equipment:

- OSHA approved Z87.1 or higher safety glasses
- Long pants of denim or other flame resistant material
- 1" binder for handouts, assignments, and course materials

Lockers: Lockers are available in the Agricultural Mechanics building. Provide your own lock, and be prepared to share with a partner

Safety: Safety is a primary concern while working in the shop. Students that are not working in a safe manner will be required to leave the shop. This includes failure to wear adequate eye protection. You will receive instruction on the safe operation of the equipment; any unsafe operation will be dealt with accordingly. **Proof of tetanus immunization is required.**

Required Text:
Recommended Andrew D. Althouse, Carl H. Turnquist, William A. Bowditch, Kevin E. Bowditch and Mark A. . Modern Welding, 11th ed. Goodheart-Willcox Company, 2004 or newer. Students are expected to have read the assigned reading before lecture.

Students Responsibility:
- Students are strongly advised not to miss labs since this time may be difficult or impossible to make them up.
- No makeup's will be allowed unless by prior permission of the instructor.
- Cleanup of the shop is part of the laboratory exercise. Students not participating in shop cleanup will have points deducted from their lab grades.
- No written assignments will be accepted after the last lecture meeting. Late assignments are subject to a 20% penalty. No lab projects will be accepted after the final exam.

Tentative Schedule:

	Lecture Topic	LABS	BOOK UNITS
Week 1-	Shop Safety, PPE, Ventilation, Fire, Arc Welding equipment	Safety/Shop Orientation	Chapter 1
Week 2-	Shielded Metal Arc Welding – Striking the arc, Running continuous beads	E 6011 Bead Pad	Chapter 5 and 6 and/or handout
Week 3-	Joint design and terminology	E6011 Butt Joint Groove	Chapter 3 and/or handout
Week 4-	Welding positions and terminology	E6011 Lap Joint Fillet	Chapter 3 and/or handout
Week 5-	Controlling distortion	E6011 Tee Joint Fillet	Handout and/or video

	Week 6-	Electrode selection,	E7018 Bead Pad	Chapter 5 and/or handout
	Week 7-	Ferrous and non-ferrous metals	E7018 Butt Joint Groove	Chapter 21 and 22 and/or handout
	Week 8-	Iron and steel, Alloy metals	E7018 Lap Joint Fillet	Chapter 27 and 28 and/or handout
	Week 9-	Identifying metals, properties of metals	E7018 Tee Joint Fillet	Chapter 28 and/or handout
	Week 10-	Oxyfuel Equipment, setup, and operation	OFW Puddle Pad, Bead Pad with Filler	Chapter 12 and 14 and/or handout
	Week 11-	Oxyfuel welding and brazing	OFW Fusion Lap Joint	Chapter 13 and 17 and/or handout
	Week 12-	Weld joint design factors	OFW Fusion Butt Joint	Chapter 13 and/or handout
	Week 13-	Surfacing	OFW Brazing Tee joint	Chapter 26 and/or handout
	Week 14-	Oxyfuel cutting and piercing	OFW Straight Line Cuts	Chapter 15 and/or handout
	Week 15-	Weld quality and defects	OFW Pierce and Cut	Chapter 30 and/or handout
	Week 16-	Projects – Measurement and layout	GMAW Bead pad	Chapter 2 and/or handout
	Week 17-	Projects - Sketching and Drawing	GMAW Butt Joint Groove	Chapter 2 and/or handout
	Week 18-	Projects – Basic fit-up and construction	GMAW Lap Joint Fillet	Chapter 2 and/or handout
	Week 19	Final Exam Review	GMAW Tee Joint Fillet	Study All Materials

***You will be responsible for completing the reading of the assigned section or chapter before the Lab day each week. Lab reports must be turned in by the end of last lecture each week.**

Subject to Change:
This syllabus and schedule are subject to change. If you are absent from class, it is your responsibility to check on any changes made while you were absent.

Evaluation:
Students will be evaluated on the basis of their performance on quizzes (announced and unannounced), written assignments, unit tests, lab projects and final examination according to the following scale.

Class Participation	15%
FFA Participation	10%
Tests	25%
Quizzes	12.5%
Skill Demonstrations	25%%
Final Exam	12.5%

Your grade in this course will be based on the following scale:

A – 90 – 100%
B – 80 – 89%
C – 70 – 79%
D – 60 – 69%
F – 59% and below

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 an 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 SCCCD Dean of Admissions, Dr. John Cummings.

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.

College Policies:

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.
- It is considered polite to turn off cell phones when in the classroom or shop. Please do so.
- There is no tobacco use allowed in classrooms, shops, or school vehicles.
- 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.
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Important Dates

- Martin Luther King Day Holiday — January 18
- Last day to drop and qualify for a refund — January 14
- Lincoln's Birthday Holiday — February 8
- Washington's Birthday Holiday — February 15
- Last day to drop a class and not receive a letter grade — March 11
- Memorial Day Holiday — May 30
- Finals Week — June 6-10

FINAL EXAM: – Thursday, June 9, at 7:55 a.m.