HUSD

Ag Mechanics Dept

PO Box 488

Hamilton City, 95951

**Grade Level:** 10-12 **Email:** [amartin@husdschools.org](mailto:amartin@husdschools.org) **Shop:**10

**Instructor:** Mr. A. Martin **Classroom:**11

**Course:**  ROP Ag Mech

**Prerequisite:** Intro to Ag Mech

**Course Description:**

This course is designed to give students specialized classroom work and experiences in Agriculture Mechanics and fabrications. This includes hands-on application and fabrication in proper shop safety, measurements, tool identification, sheet and cold metal, electrical, plumbing, concrete and masonry, and introduction to Oxy-Acetylene and Shielded Metal Arc Welding. These applications and methods in mechanics lead into any future experience in the advanced welding classes. Students will learn the basics of mechanics fundamentals and develop vocational talents.

**Text/ Instruction:**

Instruction is conducted through the instructor and is presented to the class by in the form of lecture, handouts, and worksheets. Before each project the students will have a demonstration of how to make the project and what proper materials should be used. Assessments will be based on the students’ work ethic and final projects assigned by the instructor. Grades for each project will be based on the students’ participation

**Course Outcomes:**

1. Students will be able to demonstrate as well as pass the shop safety test with at least

a 100%!!

2. Students will learn the basic measuring techniques using items such as steel tape

Measure, scribe combination square, carpenter square, and speed square.

3. Students are able to complete assigned sheet metal, and hot and cold metal projects.

4. Students will understand the basic electrical principles and wiring practices commonly

used in agriculture:

a. Analyze and correct basic circuit problems.

b. Understand the proper basic electrical circuit and wiring techniques with non-

metallic cable and conduct as defined by the national electrical code.

c. Interpret basic electrical plans.

5. Students will understand plumbing system practices commonly used in agriculture:

a. Know the basic plumbing fitting skills with a variety of materials such as cooper,

PVC (polyvinyl chloride), steel, polyethylene, and ABS (acrylonitrile butadiene

Styrene).

b. Understand the environmental influences on plumbing systems choices (e.g.

filter systems, and water disposal).

c. Know how various plumbing and irrigation systems are used in agriculture.

6. Students will understand agricultural cold metal processes:

a. Know how to identify common metals, sizes, and shapes.

b. Know basic tool fitting skills.

c. Know layout skills.

d. Know basic cold metal processes (e.g. shearing, cutting. Drilling, threading,

and bending.

e. Completing a cold metal project, including interpreting a plan, developing a bill of

materials, selecting materials, shaping, fastening and finishing.

7. Students will understand concrete and masonry practices:

a. Know how to properly prepare and frame a project

b. Know what materials and techniques needed to pour concrete.

c. Complete a project to demonstrate the skills that they have learned. The project

will include making a plan, and developing a bill of materials.

8. Students will understand oxy-fuel cutting and welding:

a. Understand the role of heat and oxidation in the cutting process.

b. Know how to properly set up, adjust, shut down, and maintain an oxy-fuel

System

c. Know how to cut metal with an oxy-fuel cutting torch.

d. Know how to fusion weld mild steel with and without filler rod by using oxy-fuel

equipment

e. Know basic repair skills using a variety of techniques, such as brazing or hard

surfacing.

9. Students will understand the electric arc welding processes:

a. Know how to select, properly adjust, safely employ, and maintain appropriate

welding equipment ( e.g. gas metal arc welding, shielded metal arc welding, gas

tungsten arc welding).

b. Know shielded metal arc welding processes to fusion- weld mild steel with

appropriate welding electrodes and related equipment.

10. Students will learn proper maintenance procedures in the shop.

11. Students will develop a proper work ethic in the shop.

12. Students will be able to learn to complete their work with great quality.

13. Students will be able to work with other in a safe work environment.

14. Shop students will learn what it takes to be a leader in the workforce and apply their

leadership in various activities.

**Shop Attitudes**

1. Treat everyone the same way you would want to be treated.

2. The results you develop in the class are the quality of work dedicated to it. Put in the time and the effort, because your grade depends on it.

3. Give your work a great name.

**Shop Rules**

1. No profanity

2. No tobacco

3. No smoking

4. You must use safety glasses in the shop area at all time in order to work in the shop. Refusing to wear safety glasses will result in losing participation points.

5. Always wear proper safety clothing (e.g. closed toed shoes, pants, etc.)

6. You must keep the shop clean. A clean shop is a safe shop.

7. No horseplay in the shop.

8. No throwing any objects. Any kind of actions put others in danger and will result in removal of shop privileges.

9. Be in class and seated when the bell ring.

10. Treat the tools in the shop with care.

11. All broken tools should be reported to Mr. Martin

12. Do not leave the shop or classroom without permission.

13. Tardies will negatively affect grades.

14. Parking behind the shop is not permitted without permission by Mr. Martin or Ms. Lohse.

15. Cell phones will not be allowed in the shop, and will not be used in the classroom.

16. If you are unsure about anything in the shop ask for HELP.

**Grading**

1. The student’s grades will consist of:

a. Shop time card detailing what the did that day to earn participation points.

b. Class work and assignments

c. Shop projects- Each student will also be required to enter one of these projects into the Glenn County Fair.

d. Leadership Involvement: Students must attend 2 FFA activities during each semester.

**2. Final Grading**

90-100% = A

80-89%= B

70-79%= C

60-69%= D

59% or Below= F

**Materials, Personal Safety Equipment and Project Storage**

It is the goal of the Hamilton High Agricultural Mechanics Department to provide a wide variety of high quality building supplies and materials for students to use. Materials for required classroom instruction will be provided by the instructor. Students will also get their own set of safety glasses and welding gloves. Many students that desire to build personal projects will fill out a project bill that will detail what materials and how much of each materials the students will need to complete the project. The cost of materials will be presented and the instructor and student will decide how much the project will cost for the student to build. Some materials may be covered by the school, but many of the materials will have to be paid for by the student.

I will supply a class set of safety equipment for the students to use. I recommend that the student purchase their own coveralls for the class.

It is the responsibility of the students to keep track of all materials during class and secure all projects and project materials. Students are also advised to write their name one each piece of material. The instructor is not responsible of any materials or projects that have not been properly secured.

**Commitment**

If you fully understand all of the requirements stated and expectation please sign below to show that you are willing to commit yourself to fulfilling them with your best effort.

**Student (Print) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(Signature)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Parent/ Guardian**

**(Print)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(Signature) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**