Agriculture Engineering II - Mr. Ravy
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Agriculture Mechanics and Engineering II
Agriculture Mechanics and Engineering II is a secondary level class in which students will continue their learning in the area of electrical wiring, welding, and woodworking, and also learn new skills such as computer aided drafting, plasma arc cutting, fabrication techniques, and project design. Students can use these skills to promote their understanding of industry trends and techniques and transfer these same techniques to a two or four-year college, or even straight into the workforce.

Prerequisite: Successful completion of both semesters of AME I with a "C" or better or instructor approval.

COURSE OBJECTIVE:
This is the second class in the Agricultural Mechanics Pathway program. Students who enroll in Ag Mechanics and Engineering II are allowed to focus their attention on specific skills and start specializing in certain areas. This curriculum is focused on real-world projects which reinforce academic standards, giving relevance to what students are learning. Students will see connections between the lesson and how they can apply the information in the real world, feel more connected, and become more successful in school.

GOALS/LEARNING OUTCOMES:

Upon completion of this course the student will successfully:

A. Become familiar with career opportunities relevant to the broad industry of Agriculture Mechanics.
B. Demonstrate proper use of shop tools and test equipment using industry standard terminology.
C. Understand and follow industry standards regarding safety and proper procedures.
D. Demonstrate skills and abilities in Oxy-Acetylene, SMAW and GMAW welding operations.
E. Demonstrate skills and abilities in Plasma Cutting processes.
F. Select the best welding process during development of fabrication practices.
G. Use Computer Aided Drafting (CAD) to create project drawings in multiple file formats.
H. Wire complex 110V and basic 220V electrical branch circuits.
I. Construct a wood framing project.
J. Perform land measurement and surveying tasks and computations.
K. Develop sketches and working drawings of projects using computerized drafting.
L. Create a career portfolio, develop job-seeking and employability skills, and learn record keeping skills.
M. Engage in opportunities for career/leadership development.
N. Practice and implement critical thinking skills through the use of technology, individual and group projects, and workplace simulation activities.
O. Participate in relevant FFA competitions to assess classroom skills and theory.

MAG 41 Goals/Outcomes:
Student Learning Outcomes:
Upon completion of this course, students will be able to:

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

Objectives:
In the process of completing this course, students will:

1. Identify hazardous issues that pertain to the agricultural welding shop.
2. Properly set and adjust a SMAW welding machine.
3. Set and adjust an MIG welding machine.
4. Perform welds in the flat position using E6011 welding rods.

5. Perform welds in the flat position using E7018 welding rods.
6. Properly set up and shut down the oxyacetylene apparatus.
7. Properly demonstrate braze welding in the flat position using the oxyacetylene apparatus.
8. Properly demonstrate fusion welding in the flat position using the oxyacetylene apparatus.
9. Demonstrate the ability to properly clean and fit their welds.
10. Demonstrate the ability to maintain welding machines and equipment in the agricultural shop.

Textbook Information

Agricultural Mechanics; Fundamentals and Applications and ICEV online-provided in class
Metal Fabrication Technology, Excerpts from the AISC Steel Construction Manual -provided in class
Recommended Materials: Students should have computer access, writing utensils, and paper, closed toed shoes with rubber soles and solid tops, and jeans or canvas work pants (for skill activities). Handouts and technical information will be provided by the instructor on google drive.

Course Fee

This course has potential costs associated with projects. Students will be required to pay for materials and consumables used in the construction/repair of projects that will be **kept** by the student. THIS ONLY APPLIES TO ITEMS BUILT DURING SKILL SESSIONS IN SMALL GROUP PODS AND WILL BE REVISITED WITH MORE INFORMATION.

SCHOLASTIC DISHONESTY:

Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. All work submitted MUST BE YOUR OWN. Penalties and/or disciplinary proceedings may be initiated by Clovis East High School against a student accused of scholastic dishonesty. “Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion. Cheating of ANY kind will result in loss of credit on the assignment or project and appropriate disciplinary action according to the student handbook and C.E.H.S policies.

Student Expectations

You are enrolled in a Technical Education class to obtain a marketable skill that will enable you to better prepare yourself for future employment. Your attendance, behavior, and dress are expected to be the same as required in the workplace. If your classroom behavior creates an unsafe environment in the classroom and/or causes damage to the equipment, C.E.H.S. may take steps to remove you from the class.

Course Requirements and Grading Policy

A. Attendance Policy:
Students are expected to attend all classes regularly. Students are responsible for material covered during their absences, and it is the student’s responsibility to consult with the instructor for make-up assignments.

- log-on daily, each period, on time
- enable video the entire class period with face shown
- use first and last name as your computer Zoom name (unless approved by teacher)
- be seated in an appropriate learning space (e.g. desk, table, counter, quiet space etc.)
- **“COVID Positive/Quarantined Students:** Students who are COVID positive will still attend classes via Zoom/Google Classroom, if health situation permits. Parents must communicate with the main office if they are unable to attend class or complete assignment due to their illness. Students who are isolating or under quarantine who are asymptomatic are still required to complete assignments via Google Classroom or Zoom into class if their teacher provides a Zoom link.”
- **“Room/Zoom:** Hybrid students may be required to Zoom in for classroom instruction during asynchronous time. Students grades may be affected if they are not present during that time.”

Upon our return, you must be in your seat before the tardy bell rings. Think of this class as your job; you could not continuously be late to work without getting fired. Class attendance is checked daily by the instructor.

B. Lab Requirements: **Applies to skill-pod activities on-site.**
Students must complete lab assignments, use tools/equipment safely and correctly, and wear proper clothing/equipment at all times. Students must complete daily cleanup jobs. These requirements contribute to the daily participation and shop conduct portion of the grade.

C. Dress Code:
Students will be expected to attend class following CUSD dress code at all times whether in person or in video conference. Skill pod/shop attire must be correct safety wear at all times.

D. Electronics:
Cell phones and other devices are very disruptive to class, and are not to be used for calls, texts, pictures, music, etc. in the classroom or shop. See student handbook for school electronics policy and listen for technology-use cues from the instructor; a red-yellow-green system will designate appropriate technology-use in in-person instruction.

E. **Skill Pod Shop/Class Guidelines: Applies to skill-pod activities on-site.**

1. Safety glasses must always be worn when working in the shop. Failure to wear safety glasses will result in a loss of shop privileges.
2. Eating and drinking is **NOT** allowed in the Ag. Shop. Bottled water is ok only in the classroom.
3. Students are to pass a safety test and follow all safety rules set forth by the instructor
4. Students are **NOT** to enter the instructor's office/workspace without permission
5. Students are **NOT** to leave the shop/classroom without the instructors' permission and a written pass
6. Students must have permission before using any building materials or equipment.
7. All projects built in the shop must be paid for in full before they can be taken home.

STUDENT EVALUATION:
To determine completion of the course, the instructor will assign grades for all exams, assignments,

lab activities, and practical exams. Assignments must be submitted on time to receive full credit. Each day an assignment is late will result in a loss of 10% of possible credit. Assignments more than 2 weeks late WILL NOT receive credit unless prior arrangements are made.
Students are to:

- actively participate in online learning the entire time with teacher, support staff, and peers
- stay on pace with daily assignments
- take assessments online as directed by teacher
- have access to laptop/Chromebook and internet for work completion (devices available through the site)
- have daily interaction with teacher via online learning, email, google classroom etc.

Lecture Content:
Introduction to Safety
Protective Equipment
Ventilation
Fire Prevention
Arc Welding
Oxyacetylene
Joint Design and Terms
Design Factors
Controlling Distortion
Weld Defects
Oxyacetylene Welding and Cutting
Equipment
Set-up and Operation
Cutting Plate Steel
Piercing Holes
Power Cutting
Shielded Metal Arch Welding
Machines and Accessories
Selecting the Electrode
Striking the Arc
Running Continuous Beads
Surfacing
Welding Positions
Gas Metal Arc Welding
Machines and Accessories
Set-up and Operation
Running Beads
Properties of Metals
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

Lab Content:
MAG 41 Welding- Introduction to Agricultural Welding
LABS:
Arc welding Labs (all in the flat position)
LAB #1 E6011 – Pad
LAB #2 E6011 – Butt Joint Butt Weld
LAB #3 E6011– Lap Joint Fillet Weld
LAB #4 E6011– T-Joint Fillet Weld
LAB #5 E7018 – Pad
LAB # 6 E7018 – Butt Joint Butt Weld
LAB #7 E7018 – Lap Joint Fillet Weld
LAB #8 E7018 – T-Joint Fillet Weld
Oxyacetylene Welding/Cutting
LAB #9- 5- Beads pushing puddle
LAB #10 5- Beads with rod in the flat position
LAB #11 Lap Joint Fusion Weld
LAB #12 Butt Joint Fusion Weld
LAB #13 Tee Joint Fusion Weld
LAB #14 Cut Straight Line in plate steel with oxyacetylene torch
LAB #15 Pierce and cut specified hole and square in plate steal
MIG Welding (all in the flat position)
LAB #16 MIG – Pad
LAB #17 MIG – Butt Joint Butt Weld
LAB #18 MIG – Lap Joint Fillet Weld

GRADE BREAKDOWN
1. Exams and quizzes – 25%
2. Shop skills and lab assignments – 25%
3. Class and Shop participation – 15%
4. Classwork – 25%
5. FFA/SAE Participation and Record Book – 10%

GRADING SCALE: Based on percentage
100-90=A
89-80 =B
79-70 =C
69-60 =D
59-0 =F

Make-up policy
Consult the instructor BEFORE missing any non-illness time to set up make-up work or tests. See the instructor ASAP after missing class due to illness to make arrangements for illness make-ups.

Projects, Assignments, Portfolios, Service Learning, etc.

ASSIGNMENT:
A requirement of this course is the creation of a portfolio including work samples, resume and cover letter, job application, and letters of recommendation. The instructor will assist you in completing this portion of the course.

ASSIGNMENT:
Students will attend or participate in at least 3 FFA activities per semester to fulfill the 10% FFA/SAE portion of their grade. Students will be given every available opportunity to meet this requirement. Extra FFA participation is the **ONLY** extra credit possible.

ASSIGNMENT:
Students will make significant progress on or complete a SAE (Supervised Agriculture Experience) project throughout the year. Records will be kept on the hours and dollars spent, and any dollars earned from the project using the AET system online. This requirement is included in the 10% FFA/SAE component of the course. With 0 FFA/SAE participation, the highest possible grade is a **B+, assuming completion of all other work.**

Shop Policy:

Students will conduct themselves in a professional manner and treat the shop environment as a place of business/employment. Failure to conduct oneself appropriately will be cause for loss of shop privileges. No outside projects will be allowed without PRIOR approval by the instructor.

Other Student Information (clubs, tutoring, web resources, etc.)

An after-school program may be available for additional time on projects, class work, exams, and enrichment activities. Tutorial times will be announced by the instructor.

Class Contract

I have read and understand all the contents of the syllabus for the Agriculture Mechanics & Engineering class. By signing below, I agree to follow the rules and give my best effort to achieve a passing grade.

_____ Click to google form
Student Signature

As the parent/guardian of the student listed above, I have read and understand all the contents of the attached syllabus. By signing below, I agree to encourage my student to follow the guidelines that have been set. I am now aware of what Mr. Ravy expects from my student.

_____ Click to google form (Same form, as above, no need to do twice)
Parent/Guardian Signature

Please complete the google form acknowledgement on or before August __28___, 2020.
If I have not received it by that date parents will be otherwise contacted.