# Tompkins High School

**Department of Agricultural Sciences and Engineering Technology**

**Agricultural Mechanics and Metal Technologies**

**Lecture/Lab Syllabus 2015-2016**

**Basic Information**

Instructor: Michael Watson

Phone: 281-234-1207 Email: michaelcwatson@katyisd.org

Tutorial hours: Tuesday and Thursday afternoons 2:35 PM – 4:00 PM or by appointment

**Class Meeting Times:**

Lectures: Period 04-10:24-11:14 Classroom 1341

Period 06-12:48-1:38 Classroom 1341

**Scope:**

To be prepared for careers in agricultural power, structural, and technical systems, students need to attain academic skills and knowledge; acquire technical knowledge and skills related to power, structural, and technical agricultural systems and the industry; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills and technologies in a variety of settings. This course is designed to develop an understanding of agricultural mechanics as it relates to safety and skills in tool operation, electrical wiring, plumbing, carpentry, fencing, concrete, and metal working techniques

**Safety Instruction:**

The laboratory is utilized to prepare students for careers that require a safe working knowledge of welding, cutting, electricity, construction and other various skills. Instruction on safety is provided on our state-of-the-art equipment. Students and instructors are expected to work in a safe manner, minimizing the risk of injury. Personal Protective Equipment (PPE) must be worn at all times and protect against hazards such as hot metal, sparks, flying debris, electric shock, and UV light. All students will receive instruction on safety prior to entering the laboratory environment. **Safety is a must!!! If you are being unsafe in the laboratory environment arrangements will be made, to have you removed to not pose a safety concern to yourself or others.**

**Tentative Course Objectives:**

Students are expected to be capable of the following at the end of the year:

1. Identify the areas of instruction in agricultural mechanization and engineering.
2. Discuss career opportunities in agricultural mechanization and engineering.
3. List and discuss the safety rules and procedures that are applicable to each of the activities.
4. Select the correct arc welder for a given application.
5. Describe the characteristics of AC and DC welding currents and select the current for a given application.
6. Describe the American Welding Society electrode classification system.
7. Select the correct electrode for a given application.
8. Demonstrate basic proficiency in the use of an arc welder.
9. Discuss the characteristics of fuel gases and oxidizers used in cutting, welding, etc.
10. Describe and demonstrate recommended procedures for safe handling, storage, and use of supplies and equipment.
11. Correctly set-up and turn on an oxy-fuel welding station.
12. Select correct tip size and adjust working pressures for given situations.
13. Identify the different flames and select and adjust the correct flame for given situations.
14. Demonstrate basic proficiency in cutting and welding mild steel.
15. Identify common wood working tools, demonstrate proper use, and discuss their maintenance.
16. Identify fasteners used for wood and metal products.
17. Describe and use the various types of drawings used in developing sketches and plans.
18. Identify common metals and metal working tools, demonstrate proper use, and discuss their maintenance.
19. Identify commonly used plumbing tools, supplies, and materials.
20. Describe the process of joining commonly used pipe and fittings.
21. Define commonly used electrical terms.
22. Sketch common single-phase electrical circuits.
23. Describe operations of two and four-stoke internal combustion engines.
24. Solve typical mathematical problems in agriculture.
25. Understanding basic elements of alternative energies for agriculture applications

**Supervised Agricultural Experience Program (SAEP)**

It is mandatory for each student to have and complete and SAEP project throughout the duration of the course to meet course curriculum requirements. The teacher will discuss this project in further detail during the first six weeks of school.

**Record Book**

Part of the SAEP requires students to keep and maintain a record book. The teacher will help set up and give some time in class to work on it. Several grades will be taken on the progress and completion of the record book.

**Additional Information**

Students are highly encouraged to join FFA! Being enrolled in this course does not mean the student is automatically a member. **Those wanting to become an FFA member should ask for a membership form and pay $30 by Sept. 25th.**

**Tentative Grading**

Major Exams or Major Projects-55%

Quizzes and Minor Projects- 30%

Daily Work and Participation-15%

**Late Assignments**

Assignments that are not turned in the day they are due will be accepted the next day for a maximum score of 70%. If the assignment is not turned in by the next day after it was due, it will not be accepted.

**Make-up Work**

Students will have two days for every day they are absent from school to complete make-up work. It is your responsibility to get your make-up work from your teacher or the while you were out box. If you are absent for three or more days, please meet with the teacher to discuss make-up work options.

**Tentative Lecture Outline**

|  |  |  |
| --- | --- | --- |
|  | **TOPIC** |  |
|  | Syllabus and Safety |  |
|  | Safety |  |
|  | Oxygen/Acetylene |  |
|  | Arc Welding |  |
|  | Arc Welding GMAW |  |
|  | Electrical- AC and High Voltage |  |
|  | Electrical- DC and Electronics |  |
|  | Plumbing and Irrigation |  |
|  | Internal Combustion Engines |  |
|  | Drive Trains and Lubrication |  |
|  | Horsepower and Torque |  |
|  | Small Engines |  |
|  | Simple Machines, Tools and Hardware |  |
|  | Woodworking |  |
|  | Fasteners and Hardware |  |
|  | Layout Tools and Procedures |  |
|  | Project Planning, Drawing, and Fabrication |  |
|  | Finals Week |  |

**Academic Dishonesty**

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The school and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work to be submitted, plagiarism, collusion and the abuse of resource materials.

**Classroom Rules of Conduct**

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the school. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the assistant principal for disciplinary action in accordance with school policy.

**Visitors in the Classroom**

Unannounced visitors to class must present a current, official OTHS identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor’s discretion whether or not the visitor will be allowed to remain in the classroom.

**Americans with Disabilities Act**

Students with a disability that affects their academic performance are expected to arrange for a conference with the instructor in order that appropriate strategies can be considered to ensure that participation and achievement opportunities are not impaired.

**USE OF TELEPHONE AND TEXT MESSAGERS IN ACADEMIC CLASSROOMS AND FACILITIES:**

The use by students of electronic devices that perform the function of a telephone or text messenger during class-time may be prohibited if deemed disruptive by the instructor to the conduct of the class. Arrangement for handling potential emergency situations may be granted at the discretion of the instructor. Failure to comply with the instructor’s policy could result in expulsion from the classroom or with multiple offenses, failure of the course. Any use of a telephone or text messenger or any device that perform these functions during a test period is prohibited. These devices should not be present during a test period is prohibited. These devices should not be present during a test or should be stored securely in such a way that they cannot be seen or used by the student. Even the visible presence of such a device during the test period will result in a zero for that test. Use of these devices during a test is considered de facto evidence of cheating and could result in a charge of academic dishonestly.

**USE OF TOBACCO AND TOBACCO PRODUCTS:**

Tompkins High School is a tobacco free campus and all tobacco products are prohibited in all buildings and outdoor public areas on campus.

**Course:** Agricultural Mechanics and Metal Technologies

**Instructor:** Mr. Watson

**Period:** 4th or 6th (Circle class period)

Student Name Printed:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, parent or guardian of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have read the course syllabus and understand all of the expectations and requirements for this course.

Please return this for to Mr. Watson by the end of the first week of school.

Address:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

City:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Zip:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Email:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent or Guardian Email:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent or Guardian Phone:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Student Signature Date

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Parent or Guardian Signature Date