Jefferson County High School
Course Syllabus

A. Course *Agriculture Power and Equipment*

B. Department *CTE- Agriculture*

C. Course Description

Agricultural Power and Equipment is an applied course in agricultural engineering with special emphasis on laboratory activities involving small engines, tractors, and agricultural equipment. The standards in this course address navigation, maintenance, repair, and overhaul of electrical motors, hydraulic systems, and fuel-powered engines as well as exploration of a wide range of careers in agricultural mechanics. Upon completion of this course, proficient students will be able to pursue advanced training in agricultural engineering and related fields at a postsecondary institution.

D. Grade Term *Semester*

E. Grading Scale

Range		Honors/ Regular	College-Level	A.P.
93-100	A	4.0	4.5	5.0
85-92	B	3.0	3.5	4.0
75-84	C	2.0	2.5	3.0
70-74	D	1.0	1.5	2.0

F. Term Dates

a. 1st 9 Weeks August 5, 2016 – October 7, 2016
b. 2nd 9 Weeks October 8, 2016 – December 16, 2016
c. 3rd 9 Weeks January 5, 2017 – March 15, 2017
d. 4th 9 Weeks March 16, 2017 – May 25, 2017

G. Textbook(s) *Agricultural Mechanics Fundamentals and Applications, 6th Edition*
Mechanical Technology in Agriculture

H. Other Required Reading

None

I. Other Resources

a. Odysseyware

J. Major Assignments

a. Students will complete shop based projects including tractor and equipment restorations to apply the classroom based portion of the course in a hands-on setting.

K. Procedures for Parental Access to Instructional Materials

a. Aspen Parent Portal
b. Instructor's Website
c. Email Instructor
d. Parent Teacher Conference
    a. There are two designated conference dates during the school year. Parents who would like to request additional meetings may make appointments for conferences with the teachers (during their planning periods), counselors, or a principal by telephoning the school office.

L. Field Trips

a. Any schedule fieldtrip will have a definite educational purpose and will reflect careful planning. Signed permission forms will be obtained when an off campus trip is planned.

M. Standards & Objectives

a. I Can Statement Scope & Sequence

1st Nine Weeks:

Occupational Awareness and Safety

1.1) I can demonstrate adherence to recognized safety standards and apply occupational safety concepts across all coursework.

2.1) I can demonstrate the ability to follow safety and operational procedures in a lab setting and complete a safety test with 100 percent accuracy.

3.1) I can investigate occupations in agricultural power and equipment and compare and contrast the knowledge, skills, and abilities necessary for employment as well as the typical level of education required.

Career Awareness

4.1) I can develop a written projection of the occupational trends related to agriculture power and equipment.

5.1) I can investigate opportunities to expand and diversify a Supervised Agricultural Experience program related to agriculture power and equipment.

5.2) I can accurately maintain an activity recordkeeping system and apply proper financial recordkeeping skills to summarize records by completing SAE related applications and reports.

Engine and Motor Mechanics

6.1) I can compare and contrast the first and second laws of thermodynamics as applied to combustion engines.

6.2) I can analyze the theory of operation and efficiency of internal combustion engines with regard to fuels, engine displacement, ignition, lubrication, and cooling.

7.1) I can evaluate and optimize engine performance under load and no-load operation.

8.1) I can cite technical data and document prior work to develop a written recommendation outlining a specific task or procedure for a given engine or motor.

9.1) I can demonstrate the ability to troubleshoot single cylinder engines and electric motors.

9.2) I can create a written estimate of repairs, including parts, labor, time and total cost.

Agriculture Machinery

10.1) I can recommend the appropriate machinery for a given agricultural application by matching the mechanical need to the scale and magnitude of a specific task.

11.1) I can research the basic types of fuel and lubricants; differentiate their chief components, characteristics and applications.

12.1) I can demonstrate the ability to maintain, troubleshoot, and repair agricultural equipment and create a written estimate of repairs.

13.1) I can compose an informational text comparing and contrasting the types and functions of precision and advanced technologies.

14.1) I can demonstrate in a live setting or in a presentation the ability to safely operate agriculture equipment.

Hydraulics

15.1) I can write an explanatory text to summarize the components and operational theory of a basic hydraulic system used in an agriculture setting.

16.1) I can design a hydraulic system to perform a specific task.

17.1) I can troubleshoot and repair hydraulic power and control systems used in agricultural equipment and document the parts and labor involved and draft a repair bill for suitable compensation.

Navigation and Surveying

18.1) I can explain how agricultural enterprises employ GIS systems and GPS in their work.

18.2) I can debate the legal, ethical, and economic implications of the use of these emerging technologies with regard to maximizing efficiency and efficacy of agricultural processes.

19.1) I can correctly and safely use precision surveying instruments to make measurements of large acreages.

19.2) I can compile a written survey report for use by a lay leader.