Power Structure and Technology Systems

Lexington High School
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Class Description

This course is designed to develop skills in maintenance, repair, and operation of small engines. The engines you will be working on are from the Briggs and Stratton Corporation, the world-wide leader in small engine manufacturing. The classroom training material is also provided by Briggs and Stratton, and is considered to be the best in the industry.

This course will also introduce electrical history and theory. It will also introduce electronic components as it deals with mechatronics.

Class Purpose

The purpose of the course is to expose students to, and develop competencies in the skills relevant to the career clusters dealing with engines, small power equipment, and technology. Even if you do not plan to work in a career working with engines, learning how small engines work gives you an understanding of how your car, tractor, or truck engine works. The class is also a great opportunity to learn, strengthen, and apply knowledge in the following areas:

Engineering
Problem solving (flow chart problem solving - a great mental skill used in mechanics)
General Mechanical Principles
Tool use - common and not so common tools.
Energy principles
Physics
Chemistry
Math
Shop safety
Much More!
Communication Skills

Learning Methods

There are lab activities throughout the whole semester. The purpose of the labs is tearing down and putting back together a small engine. We will cover in class specific curriculum leading up to performing the procedures on the engine. This then leads to the lab instructions on how to actually perform the steps on the engine. In addition, there are PowerPoint presentations and videos that visually show the steps of the lab instructions.

Each lab is built upon information and experience gained from the previous lab. For example, Lab #2 (Carburetor Removal and Replacement) leads directly to Lab #3 (Carburetor Disassembly and Reassembly). The student therefore may perform some lab procedures numerous times throughout this course. This will give the student experience and confidence in disassembly and reassembly of the entire engine.

Learning Units

1. Small Engine Orientation
2. Safety
3. Tools
4. Basic Engine Operation
5. Carburetors
6. Governors
7. Crankcase components: Cylinder, valves, piston, rings, head, camshaft, crankshaft, engine timing, and lubrication.
8. Flywheel and Ignition
9. Troubleshooting
10. Engine Failure
11. Electricity

Learning Materials

Small Gas Engines, 11th Edition
Textbook - Briggs and Stratton Small Engines
Briggs and Stratton Power Points
Briggs and Stratton Videos
AgEdnet.com
Agricultural Mechanics and Technology Systems

Grading

Tests/Quizzes - 50% Labs/Projects - 30% Homework – 20%
Quarter (45%) + Quarter (45%) + Semester Final (10%)= Semester (100%)

Note: It is very important that you pay attention in class and take notes. If you miss a small but critical element, you could ruin an engine, or worse you could get hurt. Horseplay in the shop will lead to removal from the class. You will be working with items that involve serious safety issues: gasoline, electricity, tools, running engines, just to name a few.

LATE WORK: All assignments have a due date. I expect all work to be turned in on time. 10 points will be deducted for every day it is late. No Chapter work will not be accepted after the chapter test has been taken.