Residential and Commercial Power Equipment

Residential and Commercial Power Equipment is a one-credit course designed to prepare students for entry-level employment or advanced training in the power mechanics field. Topics include career opportunities, safety, lawn and garden chassis, chain saw, string trimmer, tillers, generators, pumps, Environmental Protection Agency (EPA) pollution controls, electrical systems, and electrical system repair on power equipment.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond these minimum required content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. Recognize career opportunities related to the residential and commercial power equipment industry.

Safety

2. Demonstrate safety procedures for working with power equipment.

Lawn and Garden Chassis

3. Diagnose frame and sheet metal problems in power equipment.
   • Repairing frame and sheet metal problems in power equipment

4. Diagnose cutting-deck problems in power equipment.
   • Demonstrating the procedure for correcting cutting-deck problems

Chain Saw

5. Diagnose chain saw problems.
   • Demonstrating the procedure for correcting chain saw engine problems
   • Demonstrating the procedure for correcting bar and chain problems
String Trimmer

6. Diagnose string trimmer problems.
   - Demonstrating the procedure for correcting string trimmer engine problems
   - Demonstrating the procedure for correcting cutter head problems

Tillers

7. Diagnose tiller problems.
   - Demonstrating the procedure for correcting tiller engine problems
   - Demonstrating the procedure for correcting tiller drivetrain problems

Generators

8. Diagnose output problems in generators.
   - Demonstrating the procedure for correcting generator engine problems
   - Demonstrating the procedure for correcting generator electrical output problems

Pumps

9. Calculate the output pressure of various pumps.
10. Demonstrate the procedure for rebuilding various pumps.

Environmental Protection Agency Pollution Controls

11. Describe EPA pollution control units for power equipment.

Electrical Systems

12. Discuss the use of Ohm's law.
    - Applying Ohm's law to series and parallel circuits
    - Diagnosing electrical problems
13. Demonstrate procedures for repairing power equipment electrical systems.

Oxyfuel Equipment

15. Perform a variety of oxyfuel tasks, including heating metal, cutting, welding, or brazing.
Welding

16. Prepare a welding machine for operation.
    Examples: flux cored, shielded metal arc
    
    - Selecting materials for various welding techniques