

Course Objectives/Course Outline
Spokane Community College

Course Title: Basic Electrical Applications

Prefix and Course Number: HEQ 112

Course Learning Outcomes:

By the end of this course, a student should be able to:

- solder wire and cable using acceptable industry methods
- install switches, wires, and hardware to heavy equipment components
- interpret the results from electrical testing equipment
- service and test batteries
- diagnose electrical systems for component failure
- repair starting system components
- repair and calibrate ignition system components
- diagnose and repair mobile air conditioning units
- test and repair charging systems (DC generators and alternators)
- interpret service and repair manuals accurately

Course Outline

- I. Electrical Wiring and Auxiliary Components
 - A. Soldering Techniques
 - B. Installation and Protection of Wiring and Hardware
 - C. Diagnosis and Repair Methods and Practices
- II. Test Meters and Equipment
 - A. Meter Operation and Use
 - B. Test Equipment Operation and Use
 - C. Interpretation
 1. test meters
 2. test equipment
- III. Battery Maintenance
 - A. Cleaning and Servicing Procedures
 - B. Testing Methods
 - C. Charging Practices
 - D. Safety Precautions and Procedures
- IV. Charging Systems Operations
 - A. Diagnostic Techniques
 - B. Disassembly, Repair, and Assembly
 - C. Bench Test Performance Procedures
 - D. Vehicle Systems
 1. dual voltage systems
 2. electronics
- V. Starting Systems Operation
 - A. Diagnostic Techniques
 - B. Disassembly, Repair, and Assembly
 - C. Bench Test Performance Procedures
 - D. Vehicle Systems
 1. dual voltage systems
 2. electronics

- VI. Ignition Systems Operation
 - A. Conventional/Electronic Systems Operation
 - B. Service, Repair, and Calibration
 - C. Tune-Up Procedures
- VIII. Shop Safety