Print Date: 8/17/14

Course Objectives/Course Outline
Spokane Community College

Course Title: Practical Shop Procedures
Prefix and Course Number: HEQ 251

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

- Describe heavy equipment repair shop safety
- Describe tool safety procedures
- Describe the operation of an Air Conditioning System
- Explain the operation of an Electronic Controlled Diesel Engine
- Explain how Electronic Controls are used on a piece of Heavy Equipment
- Describe the proper procedure to perform a basic Diesel Engine Tune-Up
- Describe the different tests that can be performed to determine the state of repair of a typical Diesel Engine
- Describe the adjusting and testing methods used on the Drive Systems that are found on Heavy Equipment

Course Outline

I. Shop Procedures
  A. Overhead crane safety
    1. Overview
  B. Work Orders
  C. Shop Maintenance
II. Air Conditioning
  A. Safety
  B. Tools used
  C. Operation
  D. Parts Identification
  E. Testing
  F. Certification
III. Electronic Controls
  A. Diesel Engine
  B. Transmissions
  C. Anti-Lock Brakes/Traction Control
  D. Multiplex Systems
  E. On-Line Services
IV. Engine Tune-Up
  A. Valve and Injector Adjustment
  B. Injection Pump Timing-Mechanical Engine
  C. Air and Fuel Filter Inspection
V. Advanced Engine Trouble-Shooting
  A. Compression Testing
  B. Leak Down Testing
  C. Injector Cutout Testing – Mechanical and Electronic
  D. Electronic Engine Control – Sensors/Circuits
VI. Drive Systems
  A. Testing and Adjusting
  B. Final Drives
  C. Steering Clutches

D. Auto/Power Shift Transfmissions