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### DST 230.01: Air Conditioning

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# DIESEL EQUIPMENT TECHNOLOGY AIR CONDITIONING COURSE OUTLINE SPRING 2015

DET 230  
3 CREDITS

This class will deal with the theory and operation of air conditioning systems as found through-out the diesel industry. Both R-12 and R-134 will be covered along with all the necessary conversion techniques. Recovery and recycling will be discussed along with the processes being done by the student in lab. Controls of the systems will be looked at and repaired in class and lab also, this will include electrical and cable controlled type systems.

## COURSE OUTLINE:

### A) Physical principles:

- 1) Air conditioning processes
- 2) Natural laws and Principles
- 3) Temperature and heat transfer
- 4) Latent heat
- 5) Refrigerants
- 6) Pressure-Temperature relationship

### B) Refrigeration operation:

- 1) Refrigeration cycle
- 2) Compressor designs
- 3) Condensers
- 4) Receiver-Dryers
- 5) Accumulators
- 6) Flow control devices
- 7) Evaporators

C) Controlling Airflow and Temperature:

- 1) Airflow and temperature control
- 2) Vacuum controls
- 3) Blower motor and electrical controls
- 4) Automatic temperature controls

D) Refrigeration system problem diagnosis:

- 1) Complaint verification and diagnosis
- 2) Pre-service performance test and after-service operational test
- 3) Manifold and gauge set
- 4) Service valves
- 5) System pressures
- 6) Leak testing
- 7) Pressure diagnosis

E) Refrigeration system service procedures:

- 1) Discharging
- 2) Flushing a system
- 3) Evacuation
- 4) Purging
- 5) Charging and performance testing

**BOOK: Heavy Duty Truck Systems**  
Sean Bennett

**ATTENDANCE:** Second unexcused absence will drop the final letter grade one Grade, each one after that will drop grade by one.  
Being late counts the same as an unexcused absence!  
**(NOTE: THIS POLICY WILL BE ENFORCED)**

**GRADING:** Lecture counts for 50% of the final grade  
Lab counts for 50 % of the final grade **NOTE:** Work habits and attitude  
Will play a large roll in your lab grade!  
To receive an A overall you must get an A in **LECTURE!**

**REQUIRED LAB TOOLS:** SAFETY GLASSES!  
HEARING PROTECTION!  
Thermometer  
General hand tools

## LAB REQUIREMENTS:

- 1) Perform four complete function tests, evacuation, purge, charge and Function test
- 2) Rebuild two A/C compressor units (school units)
- 3) Draw a wiring schmatic on assigned school truck
- 4) Perform assigned electrical troubleshooting analysis
- 5) Flush a system
- 6) Perform a conversion on a R-12 system to a R-134 system (optional)

**SAFETY:** All students will work in a safe manner; no horse play will be tolerated, Removal from class will result!