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Spring 1-2016

### DST 231.01: Fuel Systems

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**THE UNIVERSITY OF MONTANA  
MISSOULA COLLEGE  
INDUSTRIAL TECHNOLOGY DEPARTMENT  
DIESEL TECHNOLOGY PROGRAM**

**COURSE SYLLABUS**

**COURSE NUMBER AND TITLE:** DST231T Diesel Fuel Systems

**DATE REVISED:** Spring 2016

**SEMESTER CREDIT:** 5

**CONTACT HOURS PER SEMESTER:**

**PREREQUISITES:**

**INSTRUCTOR:** Jim Harris

**PHONE NUMBER:** 406.243.7649

**E-MAIL ADDRESS:** jim.harris@umontana.edu

**HOURS:** Monday-Friday 9:00 am to 12:00 pm, 1:00 pm to 4:00 pm

**OFFICE LOCATION:** Missoula College West Campus

**COURSE DESCRIPTION:** A comprehensive study of diesel fuel injection systems to include: Cummins, Stanadyne, Caterpillar, Detroit Diesel, and Bosch. Disassembly, repair, and calibration of these systems are covered along with installation, timing, and on-engine adjustments. On engine diagnosis of the fuel systems using special diesel engine diagnostic tools including the use of computer diagnostic equipment and scan tools will be covered manufacture software will be used where applicable.

**COURSE OBJECTIVES AND OUTLINE:**

A. Caterpillar

1. Caterpillar engine timing methods and adjustments
2. Jake brakes as used on Caterpillar diesel engines
3. 3116, 3126, 3176, 3406, 3406E tune-up and adjustments
4. Electronic diagnostics/SIS software

B. Detroit Diesel

1. Two-cycle tune-up and adjustments
2. 60 series systems, tune-up and adjustments
3. Detroit Diesel electronic systems, computer/software usage

4. Jake brakes as used on Detroit Diesel engines.
- C. Cummins
1. 855/PTG tune-up and adjustments
  2. Sweeney tool usage as found on 855's
  3. N-14 electronic systems, tune-up and repairs
  4. INSIGHT LIGHT/PRO/RSGR software usage
- D. Navistar
1. 7.3L engines, Stanadyne fuel pump
  2. Inline engines, Bosch in-line fuel pump
  3. Inline electronic systems, tune-up and adjustments
  4. 444E electronics, tune-up and adjustments
- E. Dyno Operation
1. DT 530 Navistar engine run on Dyno and checked according to manufacture Dyno run-in information.
  2. Using Dyno to troubleshoot engine power complaints according to manufacture test procedures.

**GRADES:** To receive a passing grade in fuel systems both the lab and lecture must be passed with a grade of C- or better!

100 – 90	A
80 – 89	B
70 - 79	C
60 - 69	D
59 and below	F

**LECTURE:** Counts for 50% of your final grade-this will include tests, quizzes, work ethics, attitude, and attendance. If you have an overall score of 92% or better in lecture at finals time you do not have to take the final. Your grade will be an A for lecture.

**LAB:** Counts for 50% of your final grade-this will include lab sheets signed off by the instructor at the time of completion. Please do not ask for sign offs after the completion of the current project and the start of another. I will not sign off the sheet unless prior arrangements have been made!! Attitude, Work Ethics and Attendance will also influence your lab grade. Your lab grade can only raise your final grade one letter grade overall.

**NOTEBOOK:** Each student will be required to keep a three ring type notebook to contain the following: Handouts as given by date, class notes, and lab job sheets signed by the instructor in order of completion.

**ATTENDANCE:** Each student will have 3 free days during the semester. After the 3 days are used up each unexcused absence after will drop the final grade one letter until a grade of F is reached. Being late counts the same as being absent.

**CELL PHONES:** Cell phones are to be turned off unless you are expecting an emergency type call. Listening to music during class time will not be tolerated!!!

**TEST MAKE-UP:** There will be no test make-up. If you are late you will not take the test. All students will start testing at the same time. Any student that is late for class will be counted as absent.

**SAFETY:** Students shall follow all West Campus safety policies and each student will always work in a safe manner or REMOVAL FROM CLASS WILL RESULT!!! SAFETY GLASSES must be worn when working around the press or anytime your eyes could be injured!!!

**REQUIRED TEXT:** Diesel Engine Repair by John F. Dage

**SAFETY REQUIREMENTS:** Safety glasses and hearing protection