

**DET 182B Course Outline as of Fall 2014****CATALOG INFORMATION**

Dept and Nbr: DET 182B Title: DIESEL FUEL SYSTEMS

Full Title: Diesel Engine Fuel Systems

Last Reviewed: 1/22/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.50	17.5	Lecture Scheduled	43.75
Minimum	3.00	Lab Scheduled	2.00	8	Lab Scheduled	35.00
		Contact DHR	0		Contact DHR	0
		Contact Total	4.50		Contact Total	78.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 87.50

Total Student Learning Hours: 166.25

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: DET 82B

**Catalog Description:**

An in-depth study of heavy duty diesel engine fuel and electronic control systems. Students perform service, maintenance and diagnosis of diesel engine fuel systems.

**Prerequisites/Corequisites:**

Course Completion of DET 182A

**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: An in-depth study of heavy duty diesel engine fuel and electronic control systems. Students perform service, maintenance and diagnosis of diesel engine fuel systems. (Grade Only)

Prerequisites/Corequisites: Course Completion of DET 182A

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

Upon successful completion of the course, students will be able to:

1. Carry out diagnostic procedures to deduce necessary repairs and perform tune-up procedures to correct engine performance.
2. Identify and evaluate electronic systems components.
3. Perform diagnosis and repairs on an electronic control system.
4. Identify different types of engine fuel systems.
5. Use engine tune-up and diagnostic tools and instruments effectively.
6. Discuss and apply personal, shop, and environmental safety procedures.

### **Topics and Scope:**

1. Engine inspection and operation
  - a. Pre-operation inspection
  - b. Safety checks
  - c. Engine start-up
  - d. Engine operation
  - e. Fuel system
2. Tune-up procedures
  - a. Four-stroke cycle
  - b. Standard tune-up procedures
  - c. Electronic engine tune-up procedures
  - d. Electronic component testing
3. Diagnostic procedures
  - a. Mechanical fuel system diagnostics
  - b. Electronic fuel system diagnostics
  - c. General engine diagnostics
4. Engine accessories
  - a. Turbocharging and supercharging
  - b. Engine brakes and retarders

- c. Heaters and coolers
- d. Adaptive housings and devices
- 5. Safety
  - a. Personal
  - b. Shop
  - c. Environmental

### Assignment:

1. Read 40 to 60 pages a week
2. Perform engine diagnostic tests
3. Evaluate engine performance and correct deficiencies
4. Document engine performance repairs with written lab report
5. 3 to 5 exams

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

lab report

Writing  
0 - 30%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Engine performance evaluation

Problem solving  
10 - 30%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Engine diagnostic tests

Skill Demonstrations  
10 - 30%

**Exams:** All forms of formal testing, other than skill performance exams.

2 to 5 exams

Exams  
20 - 50%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

### Representative Textbooks and Materials:

Diesel Technology: Fundamentals, Service, Repair. Norman, Corinchock, Goodheart-Wilcox Pub. 7th Ed., 2007. (classic)