Course Information Form (CIF)

Course Code: AFM 270

Course Title: Diesel Engine Operations

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0605
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 2-2-3
Credit Hour Distribution:

Lecture: 2	Lab: 2	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Theoretical and practical operation of various diesel engines used in late-model Ford trucks. Students who successfully complete this course may receive credit for Diesel Engine Performance and Diagnosis from Ford Motor Company.

General Course Objectives

Students will be able to demonstrate an understanding of the basic operation of a compression ignition engine, demonstrate an understanding of the electronics that control the diesel engine used by the Ford Motor Company, and diagnose and repair concerns in vehicles with diesel engines.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 060

Prerequisites

Credit or concurrent enrollment in AFM 132, and AFM 115 or AFD 115
Ford Certification STST Area 32 and 34

Methods of Evaluation

The minimum number of evaluation methods includes: 16 lab exercises, 5 web courses, 1 lab practical exam, 1 Ford certification exam, and 1 final written exam.

Instructional Materials and Additional Supplies

Textbooks and special service tools will be provided by Ford Motor Company.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Diesel Engine Theory	1. Describe the history and basic operation of the diesel engine.	4	4	0
Fuel System	1. Demonstrate the operation of the direct injected fuel system.	4	4	0
Oil System	1. Explain the operation of a high pressure oil system and the high pressure fuel system used for injector operation.	4	7	0
Air Inlet and Exhaust System	1. Describe the operation of the turbo charger and the regulated exhaust back pressure systems.	4	5	0
Base Engine Diagnostics and Maintenance	1. Diagnose base engine concerns using the latest diagnostic equipment available.	7	5	0
Electronic Power Train Control System	1. Diagnose problems in electronic power train control systems.	7	5	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0