

Dakota County Technical College

HCEM 1246: Diesel Engine Overhaul II

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course teaches engine tear down, failure analysis, cylinder head repair and major overhaul, and use of proper precision measuring instruments on engines used in the heavy equipment field such as Cat, John Deere, Perkins, Case, Ford, Cummins and Detroit Diesel. This course also includes basic fundamentals of diesel engine design, including the study of cylinder heads and blocks, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Major tear down and measuring are included along with mastery of preventive maintenance and major repair, tune-up and testing on mobile and stationary diesel engines used in the heavy equipment industry. Safety and troubleshooting are stressed. Prerequisites: HCEM1101 and HCEM1140.

B. COURSE EFFECTIVE DATES: 08/21/2003 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. demonstrate professionalism
2. analyze cylinder head failures
3. demonstrate use of valve grinding equipment
4. explain wet sleeve removal and installation techniques
5. explain dry sleeve removal and installation techniques
6. demonstrate removal of pistons, rods and rings
7. demonstrate shop safety
8. identify engine types
9. perform visual inspection of engine and components
10. demonstrate proper torque guidelines
11. evaluate cylinder head(s)
12. demonstrate use of specialized tooling and equipment
13. demonstrate use of correct service manuals and software
14. demonstrate ability to estimate cost of repairs
15. write service report(s)
16. use safe work habits
17. evaluate crankshaft and bearings
18. analyze cylinder bore measurements

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted