

I. COURSE DESCRIPTION:

Engine Systems is designed to provide the proper maintenance and repair procedures for students working on Truck and Coach Commercial Vehicles and Equipment. This course will teach the students about the different types of diesel engine intake and exhaust systems and the components used to enhance and increase the efficiency of the engines combustion system. Students will learn about the purpose and operation of Turbochargers, Blowers, Engine Exhaust Brakes and Retarders and the effects that these systems have on engine performance. The students will also learn the cause and effect of engine combustion on the Lubrication, Cooling and Mechanical Systems of the engine and the need for constant maintenance of these vital systems. Proper testing and diagnostic procedures will be demonstrated and taught to enable the students to perform accurate and proper repairs to the above mentioned sub systems and components of the engine.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Define the purpose, construction and operation of diesel engine combustion system
2. Explain the theory of operation of the Intake system and the different engine air supercharge and charge air coolers used on these engines
3. Explain the theory & operation of the exhaust system and the different types of turbochargers used to enhance engine performance
4. Perform proper diagnostic procedures for evaluating the operation of turbochargers and superchargers
5. Perform proper diagnostic procedures to evaluate the condition and efficient operation of the lubrication system and its components according to Manufacturers Procedures
6. Perform proper and safe procedures to evaluate the condition and efficiency of the cooling systems and its components according to Manufacturers Procedures
7. Safely perform the proper overhaul and renewal procedures to the engines internal components according to manufacturers service manuals and procedures

III. TOPICS:

1. Diesel engine combustion theory
2. Diesel engine intake & exhaust system components and styles
3. Diesel engine cooling & lubrication systems
4. Diesel engine systems and component failure analysis
5. Diesel engine overhaul and repair procedures

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Hand outs provided by instructor as well as text books requested by department as per booklist.

V. EVALUATION PROCESS/GRADING SYSTEM:

Students will be tested on the material covered per apprenticeship curriculum by multiple choice questions, assignments, and practical tests. The weigh factor for each area of testing will be as follows:

Theory Tests	50 %
Practical Tests	30 %
Assignments	20 %

This evaluation can change depending on the emphasis placed on each of the above testing procedures.

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	

U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.