SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Fuel Systems

CODE NO. : CVC 605 **LEVEL:** 1

PROGRAM: Commercial Vehicle – Common Apprenticeship (6080)

AUTHOR: George Parsons

DATE: June 2008 **PREVIOUS OUTLINE DATED:**

APPROVED:

"Corey Meunier"
CHAIR **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S):

HOURS/WEEK: Total Hours 20

I. COURSE DESCRIPTION:

Upon successful completion of this course, Fundamentals of Diesel Fuel Injection, the student will be able to describe the fundamentals and properties of diesel fuel, be able to inspect diesel fuel injection systems of operational diesel engines, be able to recommend repairs to diesel engine fuel sub-systems, and be able to recommend repairs to hydraulic injectors, all following manufacturers' recommendations, government regulations and safe work practices.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Fundamentals of Diesel Fuel Systems

Potential Elements of the Performance:

- Describe the purpose and fundamentals of diesel fuels.
- Describe the functions, composition, and properties of diesel fuels.
- Explain the combustion principles of diesel fuels.

2. Diesel Fuel Injection Principles

Potential Elements of the Performance:

- Define the purpose and fundamentals of diesel fuel injection systems.
- Describe the functions, construction features, types, and application of diesel fuel system components.
- Explain the principles of operation of diesel fuel injection systems.
- Identify the components and external differences between hydro-mechanical and electronic diesel engines.
- Identify different OEM engines and fuel systems and the external differences between hydro-mechanical and electronic engines.

3. Diesel Fuel Injection Sub-Systems

Potential Elements of the Performance:

- Define the purpose and fundamentals of diesel engine fuel sub-systems.
- Describe the functions, construction, composition, types, and application of diesel fuel sub-systems.
- Explain the principles of operation of diesel engine fuel sub-systems.
- Perform the inspecting and testing procedures of diesel engine fuel sub-systems.

- Describe the replacement procedures of fuel filters and priming of the fuel sub-system.

4. Diesel Hydraulic Injection

Potential Elements of the Performance:

- Define the fundamentals of diesel engine hydraulic injectors.
- Describe the functions, construction features, composition, types, and application of diesel engine hydraulic injectors.
- Explain the principles of operation of diesel engine hydraulic injectors.
- Describe the inspection, testing, and service procedures for diesel engine hydraulic injectors.

III. TOPICS:

1. Fundamentals of Diesel Fuel Systems
2. Diesel Fuel Injection Principles
3. Diesel Fuel Injection Sub-Systems
4. Diesel Hydraulic Injection

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

The text books purchased for the Level One apprenticeship course. Sault College/SAE approved safety glasses and steel toe work boots required for shop and coveralls or a shop coat.

V. EVALUATION PROCESS/GRADING SYSTEM:

- ***70% of theory testing.***
- ***10% shop assignments.***
- ***20% Final Exam.***

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:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs 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:

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

VIII. ADVANCE CREDIT TRANSFER:

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.