

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



CICE COURSE OUTLINE

COURSE TITLE: Fuel Systems I

CODE NO. : MPF124 **SEMESTER:** Winter
MODIFIED CODE: MPF0124

PROGRAM: Motive Power – Advanced Repair

AUTHOR: Dan Tregonning
MODIFIED BY: Rachel Valois, Learning Specialist, CICE Program

DATE: Jan. 2013 **PREVIOUS OUTLINE DATED:** Jan. 2012

APPROVED: “Angelique Lemay” Jan. 2013

***Dean, School of Community Services
and Interdisciplinary Studies***

DATE

TOTAL CREDITS: 5

PREREQUISITE(S): MPF103/0103

HOURS/WEEK: 8

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For additional information, please contact the Dean, School of Community Services and Interdisciplinary Studies
(705) 759-2554, Ext. 2603

I. COURSE DESCRIPTION

In this course, you will learn the basic construction, operating principles, testing and service techniques used in fuel systems including, fuel pumps, tanks, lines and sub-systems. Emission controls will be studied focusing on systems purpose and construction. You will also be introduced to electronic gasoline fuel injection and diesel fuel injection systems and electronic diesel fuel injection systems.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the CICE student along with the assistance of a Learning Specialist, will demonstrate the basic ability to:

1. *Recognize fuel subsystem components on a gasoline and diesel engine*

Potential Elements of the Performance:

- Study the different fuel system subsystems and how they connect together

2. *Recognize the components used in a diesel and gas engine fuel system.*

Potential Elements of the Performance:

- Identify the different fuel system components and how they work together in the fuel system

3. *Discuss the functions of internal and external fuel tank components*

Potential Elements of the Performance:

- Assist with removing a fuel tank from a vehicle replacing a fuel pump.
- Identify components attached to the fuel tank
- Assist with testing fuel pressure on a fuel injected vehicle

4. *Assist with troubleshooting a fuel tank sending unit*

Potential Elements of the Performance:

- Assist with testing a fuel tank sending unit and the dash gauge manually and with a scan tool

5. *Discuss the role of primary and secondary fuel filters*

Potential Elements of the Performance:

- Describe why we use different types of fuel filters and causes of defective filters

6. Assist with servicing primary and secondary fuel filtersPotential Elements of the Performance:

- Assist with replacing primary and secondary fuel filters on a diesel engine.
- Assist with replacing a fuel filter on a gasoline engine

7. Introduction to scan tools as related to fuel system diagnosis**8. Introduction to Emission Control Systems and their relationship to Fuel Systems.****9. Introduction to Alternate Fuel Sources****III. TOPICS:**

1. Fuel subsystems
2. Components of fuel systems
3. Fuel Tanks
4. Fuel Tank Sending Units
5. Fuel Filters
6. Servicing Fuel Filters
7. Basic Scan Tool usage
8. Introduction to emission controls
9. Introduction to Alternate fuels

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Automotive Technology – Textbook & Workbook

The following items are mandatory for entrance to the Shop:

- shop coat or coveralls
- CSA approved steel toe boots (high top)
- CSA approved safety glasses

Pens, pencils, calculator, 3-ring binder

V. EVALUATION PROCESS/GRADING SYSTEM:

The final grade for this course will be based on the results of classroom, assignments and shop evaluations weighed as indicated:

- Classroom – 60% - of the final grade is comprised of term tests
 Assignments – 10% - of the final grade is comprised of a number of technical reports
 Shop – 30% - of the final grade is comprised of attendance, punctuality, preparedness, student ability, work organization and general attitude

(Student will be given notice of test and assignment dates in advance)

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
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:

Cell phones cannot be used in the class or in the Shop as they are not only a distraction but a potential hazard.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.

CICE Modifications:**Preparation and Participation**

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

A. Tests may be modified in the following ways:

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

B. Tests will be written in CICE office with assistance from a Learning Specialist.***The Learning Specialist may:***

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

C. Assignments may be modified in the following ways:

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

The Learning Specialist may:

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

D. Evaluation:

Is reflective of modified learning outcomes.