

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE: MOTIVE POWER ENVIRONMENTAL TECHNOLOGY

CODE NO. : MPF128 **SEMESTER:** TWO

PROGRAM: MOTIVE POWER – ADVANCED REPAIR

AUTHOR: JAMIE SCHMIDT

DATE: JAN 2011 **PREVIOUS OUTLINE DATED:** JAN 2010

APPROVED:

“Corey Meunier”
CHAIR

DATE

TOTAL CREDITS: TWO

PREREQUISITE(S):

HOURS/WEEK:

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***For additional information, please contact Corey Meunier, Chair
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I. COURSE DESCRIPTION:

This course will examine the Motive Power industry and its effect on our environment. Topics will include: vehicle emissions and regulations, workplace environmental and health hazards, ozone depleting substances and industry standard recycling and disposal procedures. You will study the fundamentals of new and emerging environmental technology such as: bio mass fuels, electric and hybrid vehicles.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Identify and inspect basic emission components and systems in compliance with manufacturers' recommendations.

Potential Elements of the Performance:

Identify:

- Exhaust gas recirculation systems
- Catalytic convertors
- Diesel after treatment
- Evaporative emission systems

2. Identify and describe regulations and service procedures for ozone depleting refrigerants.

Potential Elements of the Performance:

Identify characteristics of:

- R12
- R134a
- Blended refrigerants
- Hydrocarbon based refrigerants

3. Describe hybrid vehicle operation and safety procedures

Potential Elements of the Performance:

Describe:

- Describe fundamental operation of series and parallel hybrids
- Describe general safe working practices on hybrid vehicles

- Observe battery disconnect procedures

4. Describe the combustion process of fossil fuels, identify sources of vehicle emissions and perform vehicle emission testing.

Potential Elements of the Performance:

- Compare fossil fuel emissions to alternate fuel sources
- Identify sources of harmful vehicle emissions
- Identify workplace hazards associated with vehicle emissions

III. TOPICS:

1. VEHICLE EMISSIONS
2. OZONE DEPLETION
3. HYBRID TECHNOLOGY
4. ALTERNATE FUELS

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Automotive Technology, Canadian edition.

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests 50%

Assignments and classroom exercises 50%

If a student misses a test he/she must have a valid reason (i.e. medical or family emergency – documentation may be required). In addition, the instructor **must** be notified **prior** to the test sitting. If this procedure is not followed the student will receive a mark of zero on the test with no make-up option. Test “rewrites” will not be offered.

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:

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.

It is the departmental policy that once the classroom door has enclosed, the learning process has begun. Late arrivers will not be granted admission to the room.

Eye, Face and Foot Personal Protection Equipment (P.P.E):

Students are required to wear appropriate Personal Protection Equipment (P.P.E) in designated areas at all times. The designated areas for eye and foot protection in the Motive Power areas are: C1073 (Automotive), C1000, C1010, and C1040 (Truck/Coach and Heavy Equipment) and C1120 (Marine and Small Engines). Appropriate P.P.E must also be worn when facing hazards outside of these designated areas.

Minimum Eye Protection:

All protective eye wear shall meet the requirements of:
C.S.A. - Z94.3 or A.N.S.I. - Z87.1 +.

Approved safety glasses (lens and frames) shall have side protection such as wrap around design or fixed side shields.

Minimum Foot Protection:

1. Boot height- minimum 5 ½" uppers, measured from the top of the sole.
2. CSA Green Patch rating.

VII. COURSE OUTLINE ADDENDUM:

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