

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:** 2

PROGRAM: MOTIVE POWER – ADVANCED REPAIR

AUTHOR: JAMIE SCHMIDT

DATE: JAN 2010 **PREVIOUS OUTLINE DATED:** JAN 2009

APPROVED: _____
“Corey Meunier”
CHAIR DATE

TOTAL CREDITS: 2

PREREQUISITE(S):

HOURS/WEEK:

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*For additional information, please contact Corey Meunier, Chair
School of The Natural Environment, Technology & Skilled Trades
(705) 759-2554, Ext. 2610*

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

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Automotive Technology, Canadian edition.

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests 80%

Assignments and classroom exercises 20%

The following semester grades will be assigned to students:

| Grade | Definition | <i>Grade Point Equivalent</i> |
|--------------|--|-------------------------------|
| A+ | 90 – 100% | 4.00 |
| A | 80 – 89% | 3.00 |
| B | 70 - 79% | 2.00 |
| C | 60 - 69% | 1.00 |
| D | 50 – 59% | 0.00 |
| F (Fail) | 49% and below | |
| 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:

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.

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.

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. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

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

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

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.

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*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. 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.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

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.

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.

Foot Protection:

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