

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Heavy Duty System Maintenance

CODE NO. : MPF126

SEMESTER: 2

PROGRAM: Motive Power Technician – Advanced Repair (4044)
Motive Power Fundamentals – Heavy Equipment
& Truck Repair

AUTHOR: George Parsons

DATE: December 2016

**PREVIOUS OUTLINE
DATED:**

March 2016

APPROVED:

"Corey Meunier"

Jan '17

CHAIR

DATE

TOTAL CREDITS: 1

PREREQUISITE(S): MPF 103

HOURS/WEEK: 2

Copyright ©2017 The Sault College of Applied Arts & Technology
Reproduction of this document by any means, in whole or in part, without prior written permission of Sault College of Applied Arts & Technology is prohibited.

For additional information, please contact Corey Meunier, Chair

School of Technology & Skilled Trades

(705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

Upon successful completion of this course, Heavy Duty System Maintenance, the student will be able to identify and describe the various types of off road heavy equipment. Course will focus on entry level maintenance procedures performed on various pieces of Heavy Equipment as well as safety precautions to be observed working on and around Heavy Equipment.

Students will be required to follow proper safety procedures when performing the above tasks according to both Sault College Motive Power Department Standards and Vehicle Manufacturers safety regulations and specifications.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. *Visually Identify types and styles of Heavy Equipment***Potential Elements of the Performance:**

- Identify different pieces of heavy equipment
- Identify major components in heavy equipment.

2. *Perform service and maintenance inspections following manufactures recommendations***Potential Elements of the Performance:**

- Be aware of safety hazards that exist in a heavy equipment repair shop and take proactive measures to address them.
- Be aware and take proactive measures to the safety hazards that exist in performing routine maintenance on heavy equipment.
- Perform safe lifting procedures with every lift.
- Perform safe climbing procedures when climbing is required.
- Safely block a machine so maintenance can be performed as per manufactures recommendations.
- Perform service and maintenance on heavy equipment as per manufactures recommendations.
- Complete assigned inspection reports.

3. *Perform Cooling System testing and Service using the proper methods and coolant handling equipment according to Manufacturers Specifications and Safety Policies.*

Potential Elements of the Performance:

- Test antifreeze freeze protection
- Test PH and recommend the proper procedure to correct the problem
- Check water pump drive system and fan
- Check rad and hoses for condition, external leaks and cleanliness
- Check drive belt tension and condition

4. *Equipment Operation*

Potential Elements of the Performance:

- Be able to safely operate at least one piece of heavy equipment to perform routine maintenance on it as per manufactures' recommendations.

5. *Perform visual inspection, test and repair vehicle lighting systems.*

Potential Elements of the Performance:

- Check operation of all lighting systems
- Replace and repair lighting as required

6. *Perform the applicable engine lube service and chassis lubrication service to a variety of on road vehicles and equipment.*

Potential Elements of the Performance:

- Change engine oil and filters
- Lube pins and bushings as required
- Lube steering linkage and driveline components as required

III. TOPICS

1. Visually Identify types and styles of Heavy Equipment
2. Perform service and maintenance inspections following manufactures recommendations
3. Cooling System testing
4. Equipment Operation
5. Lighting systems
6. Engine lube service

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Pens, pencils, calculator, clip board

The following items are mandatory in the Shop:

- CSA approved steel toe boots (high top)
- CSA approved safety glasses
- Approved coveralls

V. EVALUATION PROCESS/GRADING SYSTEM:

- Assigned equipment service and maintenance inspection reports 50%
- Shop – 50% of the final grade is comprised of attendance, punctuality, preparedness, student ability, work organization and general attitude.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	
A	80 – 89%	4.00
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 been closed, the learning process has begun. Late arrivers will not be granted admission to the room.

**Cell phones are not allowed to be on
in the classrooms or shop areas.**

VII. COURSE OUTLINE ADDENDUM:

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