SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	Work Practices		
CODE NO. :	MPF103	**SEMESTER:**	ONE
PROGRAM:	Motive Power Technician – Advanced Repair Motive Power Fundamentals – Automotive Repair Motive Power Fundamentals – Heavy Equipment & Truck Repair		
AUTHOR: **PROFESSORS:**	Group 2014 George Parsons & Dan Tregonning		
DATE:	September 2014	**PREVIOUS OUTLINE DATED:**	September 2013

APPROVED: *"Corey Meunier"*

CHAIR **DATE**

TOTAL CREDITS: SIX

PREREQUISITE(S): None

HOURS/WEEK: TWELVE

For additional information, please contact Corey Meunier, Chair
Technology & Skilled Trades
(705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

Upon successful completion of this course, the student will be able to describe the legal responsibilities of employees and employers relating to safe work practices and the protection of the environment. They will also learn the proper operation of hoisting, jacking, lifting, rigging, and blocking equipment according to the manufacturer's recommendations. Students will be able to use precision measuring tools, perform fastening device installation and removal and use proper hand tools including electric and pneumatic for the required task to be completed. The student will also identify Motive Power equipment types.

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. Use the correct safety and environmental practices associated in an automotive shop.

Potential Elements of the Performance:

- List the safety equipment required to operate a motive power shop
- Describe the potential dangers associated with in the motive power repair industry
- Describe the rights and responsibilities of the employer and employees under the Occupational Health and Safety Act. (OHSA).
- Outline the proper procedures to defuse potentially hazardous situations in the work place
- Exhibit knowledge and understanding of the WHMIS Safety Act
- Demonstrate proper use of cleaning equipment
- Explain the laws and proper handling of air conditioning refrigerants
- Fire Safety
- Proper Personal Protective Safety Equipment
- Outline Hybrid safety guidelines and precautions
- Be able to identify potential safety hazards in a motive power environment:
    - electrical hazards
    - proper ventilation
    - glove requirements
    - slipping hazards
    - tripping hazards
    - lifting techniques
    - eye hazards
    - hearing hazards
    - rings and jewelry

2. Demonstrate the use of proper jacking and lifting equipment used in the motive power industry.

Potential Elements of the Performance:

Demonstrate the proper method of raising and lowering vehicles using hoists, fork lifts, jacks, blocking and safety stands.

- Use safety stands and jacks
- Perform vehicle placement and movement
- Find the lifting points
- Outline equipment maintenance
- State lifting capacities of hoisting equipment
- Use adaptors & extensions
- Describe types of hoists and lifting equipment
- Operate safety locks and releases
- Position vehicle / wheel chocks
- Check overhead environment
- Verify correct engagement of lift points
- Verify balance
- Verify correct use of safety locks

3. Identify and safely use hand and power tools common to the motive power industry.

Potential Elements of the Performance:

Perform the following metal working operations:

- verify thread strengths and torque requirements for wet and dry
- repair damaged threads
  - free seized threads, remove broken studs / cap screws
  - install helicoils and keenserts
  - apply thread locker and anti-seize
- perform metal working tasks related to
  - drilling
  - tapping
  - hack sawing
  - filing
- Identify hand and power tools used the repair of motive power vehicles and equipment.
- Perform component removal and installation using proper tools.

4. Define the purpose and fundamentals of fasteners and tightening procedures

Potential Elements of the Performance:

- identify fastener grades and applications
- demonstrate the ability to identity SAE vrs SI
- explain tensile, yield, shear strength and how they differ
- choose the proper grade pitch threads per inch for the job being performed

- explain the factors that affect torque such as thread condition, lubrication, temperature and fastener composition

5. Demonstrate a working knowledge of the purpose, construction, principals of operation, and calibration of precision and non-precision measuring tools

Potential Elements of the Performance:

- metric and imperial measurements and conversions
- demonstrate use of micrometers (inside and outside)
- use small hole gauges, calipers. Verniers and telescoping gauges
- measure brake drums with metric and imperial drum gauges
- apply torque wrenches to the trade (click, dial, and beam)

6. Describe and observe the proper operation of powered lift trucks and identify the type and operating fundamentals, inspection, maintenance and recommended safe operating procedures for powered lift trucks.

Potential Elements of the Performance:

- Understand the fundamentals of fork truck stability.
  i. Centers of gravity and load centers
  ii. Safe working loads
- Identify and avoid the causes of lateral and longitudinal instability.
- Recognize the need and legalities of daily inspections, logs, brake tests, overload effects, steering maneuvers, choice of travel direction, vehicle loading, stacking maneuvers, and parking.
- Recommend the safe refueling or charging strategies for gas, diesel, propane and electric fork lifts.
- Identify appropriate lifting accessories and proper rigging procedures.

7. Identify various types and styles of equipment utilized in the Motive Power Industry.

Potential Elements of the Performance:

- Complete assigned project

III. TOPICS:

1. Shop Safety
2. Hoisting and Lifting
3. Hand and Power Tools
4. Fasteners
5. Precision Measuring Tools
6. Power Lift Truck
7. Motive Power Equipment Identification

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Title: Heavy Duty Truck Systems
Edition: 5th ed.,
Author: Bennett
Publisher: Thomson Nelson Learning Canada

Title: Automotive Technology: A Systems Approach
Edition: 2nd Canadian Ed.
Author: Erjavec
Publisher: Thomson Nelson Learning Canada

Pens, pencils, calculator, 3-ring binder
4 – colour pen or coloured pencils, or high-lighters
Blue, Red, Yellow and green are required.
Pocket flashlight and a pocket magnet

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:

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

- Classroom – 35% of the final grade is comprised of term tests
- Assignments – 10% of the final grade is comprised of a number of technical reports
- Shop – 45% of the final grade is comprised of attendance, punctuality, preparedness, student ability, work organization and general attitude
- Employability Skills – 10% of final grade is comprised of attendance, class participation, show ability to follow direction and being a team player.

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

NOTE: All assignments will be in typed format. NO hand written assignments will be accepted.

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:

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 in the classrooms or shop areas during class time.

VII. COURSE OUTLINE ADDENDUM:

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