



## COURSE OUTLINE: MPF129 - TC CHASSIS/SUSP SYS.

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	MPF129: TRUCK COACH CHASSIS & SUSPENSION SYSTEMS
<b>Program Number: Name</b>	4044: MOT POWER ADV REPAIR 5085: HEAVY EQUIP/REPAIR
<b>Department:</b>	MOTIVE POWER
<b>Academic Year:</b>	2022-2023
<b>Course Description:</b>	<p>Upon successful completion of this course, the student will learn about the types of chassis, frames the suspension systems and tire and wheel assemblies used for On Road Truck, Tractor, and Tractor Trailer Systems. The Students will be able to identify and describe the various types of the above systems and there purpose. Students will perform visual inspections and routine service and maintenance checks for lose and worn components of frames and chassis, suspensions, tires and wheel assemblies. Students will be required to outline the proper safety procedures for performing the above tasks according to the both Sault College Motive Power Department as well as any vehicle Manufacturers safety regulations and specifications.</p> <p>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.</p>
<b>Total Credits:</b>	1
<b>Hours/Week:</b>	3
<b>Total Hours:</b>	22
<b>Prerequisites:</b>	MPF103
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>This course is a pre-requisite for:</b>	MPT235
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<b>4044 - MOT POWER ADV REPAIR</b>
<b>Please refer to program web page for a complete listing of program outcomes where applicable.</b>	<p>VLO 1 Analyse, diagnose, and solve various motive power system problems by using problem-solving and critical thinking skills and strategies and by applying fundamental knowledge of motor vehicle operation, components, and their interrelationships.</p> <p>VLO 6 Diagnose and repair suspension, steering, and brake components and systems in compliance with manufacturer's recommendations.</p> <p>VLO 7 Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices.</p> <p>VLO 8 Select and use a variety of troubleshooting techniques and test equipment to assess electronic circuits, vehicle systems, and subsystems.</p> <p>VLO 9 Apply knowledge of hydraulics and pneumatics to the testing and analysis of motive</p>



power systems and subsystems.

- VLO 10 Communicate information effectively, credibly, and accurately by producing supporting documentation to appropriate standards.
- VLO 11 Use information technology and computer skills to support work in a motive power environment.
- VLO 15 Develop and use personal and professional strategies and plans to improve professional growth, job performance, and work relationships.

#### **5085 - HEAVY EQUIP/REPAIR**

- VLO 1 Identify basic motive power system problems by using critical thinking skills and strategies and by applying fundamental knowledge of motor vehicle operation, components, and their interrelationships.
- VLO 5 Identify, inspect, and test basic suspension, steering, and brake components and systems in compliance with manufacturers' recommendations.
- VLO 6 Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices.
- VLO 7 Use a variety of test equipment to assess basic electronic circuits, vehicle systems, and subsystems.
- VLO 8 Apply basic knowledge of hydraulics and pneumatics to the testing and inspection of basic motive power systems and subsystems.
- VLO 9 Communicate information effectively, credibly, and accurately by producing supporting documentation to appropriate standards.
- VLO 10 Use information technology and computer skills to access data concerning repair procedures and manufacturers' updates.

#### **Essential Employability Skills (EES) addressed in this course:**

- EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
- EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.
- EES 3 Execute mathematical operations accurately.
- EES 4 Apply a systematic approach to solve problems.
- EES 5 Use a variety of thinking skills to anticipate and solve problems.
- EES 6 Locate, select, organize, and document information using appropriate technology and information systems.
- EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.
- EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.
- EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
- EES 10 Manage the use of time and other resources to complete projects.
- EES 11 Take responsibility for ones own actions, decisions, and consequences.

#### **Course Evaluation:**

Passing Grade: 50%, D

A minimum program GPA of 2.0 or higher where program specific standards exist is required



for graduation.

**Other Course Evaluation & Assessment Requirements:**

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.

**Books and Required Resources:**

Heavy Duty Truck Systems by Bennett  
Publisher: Cengage Learning Edition: 7th ed

**Course Outcomes and Learning Objectives:**

Course Outcome 1	Learning Objectives for Course Outcome 1
Properly identify the chassis styles, frame types used, suspension components, and the tire and wheel assembly type used on a specific type of truck, tractor	<ul style="list-style-type: none"><li>Identify the figuration style of cab and chassis (eg) Truck or Tractor or Tractor Trailer</li><li>Identify frame style of vehicle (eg) C-channel, box, X-style, steel frame, aluminum frame, double frame or single frame construction</li><li>Note the type of suspension system used (eg) Air Ride,</li></ul>



	and tractor trailer unit.	Multiple Leaf, Rubber Block, Independent <ul style="list-style-type: none"> <li>List the type and size of the tire and rim assemblies</li> </ul>
	<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
	Perform inspection of the frame and suspension for:	<ul style="list-style-type: none"> <li>Cracks in the frame rails and cross member</li> <li>Loose fasteners holding the cross members to frame.</li> <li>Loose or damaged shocks</li> <li>Broken leaf spring, loose U-bolts, worn bushings</li> <li>Shifted axle assemblies</li> </ul>
	<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
	Perform a proper tire and wheel inspection.	<ul style="list-style-type: none"> <li>Check tire pressures and valve stem location.</li> <li>Check wheel assemblies visually for loose fasteners.</li> <li>Check drive wheel ends for lubrication leaks.</li> <li>Check tires for tread wear and unusual wear patterns</li> <li>Check dual wheel configurations for proper size tires and tread design</li> </ul>
	<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
	Perform service checks on front axles.	<ul style="list-style-type: none"> <li>Inspect front wheels hubs for lube level and seal leaks</li> <li>Inspect tie rod ends for excessive wear and looseness</li> <li>Inspect king pins and king pin bushings turning ease and excessive wear</li> <li>Test spring shackles, spring pins and bushings</li> </ul>
	<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
	Perform visual inspection and normal serving of fifth wheel assemblies	<ul style="list-style-type: none"> <li>Check for loose mounting hardware</li> <li>Check mounting bushings for excessive wear</li> <li>Check sliding fifth wheel for proper operation</li> <li>Visually check jaws for loose or broken components</li> <li>Check fifth wheel plate for gouges and cracks.</li> </ul>

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight
Assignments	10%
Employability Skills	10%
Shop	45%
Theory Tests	35%

**Date:** August 15, 2022

**Addendum:** Please refer to the course outline addendum on the Learning Management System for further information.

