COURSE OUTLINE: MPF103 - WORK PRACTICES

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Course Code: Title	MPF103: WORK PRACTICES
Program Number: Name	4041: AUTOMOTIVE REPAIR 4044: MOT POWER ADV REPAIR 5085: HEAVY EQUIP/REPAIR
Department:	MOTIVE POWER
Semesters/Terms:	21F, 22W, 22S
Course Description:	Upon successful completion of this course, you will be able to describe the legal responsibilities of employees and employers relating to safe work practices, protection of the environment, and operation of lifting rigging, and blocking equipment according to government safety and environmental legislation, be able to use precision measuring tools, be able to perform fastening device installation and removal procedures, be able to describe the repair procedures for bearings, seals, and sealants, be able to identify and perform proper cleaning methods, be able to select and use proper hand tools including electric and pneumatic tools and be able to identify and perform proper lifting techniques using powered lift trucks and all in accordance to and following manufacturers` recommended procedures, government regulations and safe work practices.
Total Credits:	6
Hours/Week:	12
Total Hours:	84
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	MPF120, MPF121, MPF122, MPF123, MPF124, MPF126, MPF127, MPF129, MPF130, MPT200, MPT201, MPT202, MPT203, MPT204, MPT230, MPT231, MPT232, MPT233, MPT234, MPT235
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4041 - AUTOMOTIVE 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 2 Identify, inspect, and test basic engine components and systems in compliance with manufacturer's recommendations. VLO 6 Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices. 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 manufacturer's updates. VLO 11 Prepare logs, records, and documentation to appropriate standards.

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VLO 12 Apply business practices and communication skills to improve customer service.

4044 - MOT POWER ADV REPAIR

VLO 7 Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices.

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 16 Complete all assigned work in compliance with occupational, health, safety, and environmental law; established policies and procedures; codes and regulations; and in accordance with ethical principles.

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 2 Identify, inspect, and test basic engine 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 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.

VLO 11 Prepare logs, records, and documentation to appropriate standards.

VLO 12 Apply business practices and communication skills to improve customer service.

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.

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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 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 Automotive Technology a Systems Approach by Restoule Publisher: Nelson Education Edition: 3rd Canadian

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Use the correct safety and environmental practices associated in a motive power shop.	1.1 List the safety equipment required to operate a motive power shop 1.2 Describe the potential dangers associated with in the motive power repair industry 1.3 Describe the rights and responsibilities of the employer and employees under the Occupational Health and Safety Act. (OHSA). 1.4 Outline the proper procedures to defuse potentially hazardous situations in the work place 1.5 Exhibit knowledge and understanding of the WHMIS Safety Act 1.6 Demonstrate proper use of cleaning equipment 1.7 Explain the laws and proper handling of air conditioning refrigerants 1.8 Fire Safety 1.9 Proper Personal Protective Safety Equipment 1.10 Outline Hybrid safety guidelines and precautions 1.11 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
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Demonstrate the use of proper jacking and lifting equipment used in the motive power industry.	1.1 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 adapters & 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
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Identify and safely use hand and power tools common to the motive power industry.	3.1 verify thread strengths and torque requirements for wet and dry 3.2 repair damaged threads • free seized threads, remove broken studs / cap screws • install helicoils and keenserts • apply thread locker and anti-seize 3.3 perform metal working tasks related to • drilling • tapping • hack sawing • filing 3.4 Identify hand and power tools used the repair of motive power vehicles and equipment. 3.5 Perform component removal and installation using proper tools.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Define the purpose and fundamentals of fasteners and tightening procedures	4.1 identify fastener grades and applications 4.2 demonstrate the ability to identity SAE vrs SI 4.3 explain tensile, yield, shear strength and how they differ 4.4 choose the proper grade pitch threads per inch for the job being performed 4.5 explain the factors that affect torque such as thread condition,lubrication, temperature and fastener composition

Course Outcome 5	Learning Objectives for Course Outcome 5
5. Demonstrate a working knowledge of the purpose, construction, principals of operation, and calibration of precision and non-precision measuring tools	5.1 metric and imperial measurements and conversions 5.2 demonstrate use of micrometers (inside and outside) 5.3 use small hole gauges, calipers. Verniers and telescoping gauges 5.4 measure brake drums with metric and imperial drum gauges 5.5 apply torque wrenches to the trade (click, dial, and beam)
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Upon successful completion, the student will be able to operate heating and cutting equipment following manufacturers` recommendations, government regulations, and safe work practices.	6.1 oxy-fuel gases 6.2 eye, face, hand, foot, and clothing protection 6.3 set-up, ignition, and shutdown sequence 6.4 cylinder handling/storage 6.5 fire prevention 6.6 combustible material (eg. Butane lighter risks) 6.7 flashback 6.8 backfire 6.9 removing damaged or broken fasteners 6.10 using heat to free seized fasteners 6.11 cylinders 6.12 identification features 6.13 pressure regulator 6.14 manual valves 6.15 gauges and hoses 6.16 cutting attachments 6.17 tips 6.18 cutting metals 6.19 heating 6.20 torch body 6.21 heating tips 6.22 flashback arresters 6.23 equipment set-up, ignition, and shutdown sequence 6.24 Oxygen and acetylene pressure settings 6.25 ignition procedures 6.26 select heating and cutting tips 6.27 observe tip angle, travel speed, and gap 6.28 demonstrate awareness of potential damage from heating or cutting to surrounding materials 6.29 identify potential risks for altering metallurgical properties 6.30 perform appropriate pressure settings, ignition, and flame adjustments for specific heating and cutting tasks 6.31 remove damaged fasteners 6.32 heating and removing procedures of seized fasteners
Course Outcome 7	**Learning Objectives for Course Outcome 7**
7. Identify various types and styles of equipment utilized in the Motive Power Industry.	7.1 Complete assigned project

Evaluation Process and

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Grading System:	

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

Date:	July 30, 2021
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.

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