

COURSE OUTLINE: MPT200 - AUTO FUEL/EMISSIONS

Prepared: Jamie Schmidt

Approved: Corey Meunier, Chair, Technology and Skilled Trades

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Course Code: Title	MPT200: AUTO ALTERNATE/CONVENT.FUEL & EMISSIONS					
Program Number: Name	4044: MOT POWER ADV REPAIR					
Department:	MOTIVE POWER					
Semesters/Terms:	18F					
Course Description:	This course will compare ethanol flex fuel systems to conventional gasoline fuel injection and other alternate hydrocarbon fuel systems. Emission testing will be performed, analyzed and compared to current legislated standards. Students will use industry standard electronic and mechanical test equipment. You will have a sound understanding of fuel injection and emission systems operation, diagnosis and repair.					
Total Credits:	3					
Hours/Week:	6					
Total Hours:	48					
Prerequisites:	MPF103, MPF124					
Corequisites:	There are no co-requisites for this course.					
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	 4044 - MOT POWER ADV REPAIR 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. VLO 4 Diagnose and repair electrical, electronic, personal safety, and emission components and systems in compliance with manufacturer's recommendations. VLO 7 Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices. VLO 8 Select and use a variety of troubleshooting techniques and test equipment to assess electronic circuits, vehicle 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 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. 					
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 4 Apply a systematic approach to solve problems. 					
^	EES 5 Use a variety of thinking skills to anticipate and solve problems.					

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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 Other Course Evaluation & The following semester grades will be assigned to students: Grade Genetion Grade Point Equivalent Assessment Requirements: Grade Definition Grade Point Equivalent Ar 90 - 100% 4.00 A 80 - 89% D 7 - 79% 3.00 C 60 - 69% 2.00 D 50 59% 1.00 C 76 (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. U Unsatisfactory achievement in field /clinical placement or non-graded subject area. U U with thas withfrawm from the course without academic penalty. Automotive Technology: A Systems Approach by Erjavec Restole Publisher: Thomson Nelson Learning Objectives for Course Outcome 1 Eearning Objectives for Course Outcome 1 Cearse Outcomes and epolication of gasoline fuel rigicton systems Describe the construction and operation of multiport and injecton s									
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EES 11 Take responsibility for ones own actions, decisions, and consequences. Course Evaluation: Passing Grade: 50%, D Other Course Evaluation & The following semester grades will be assigned to students: Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 100% 4.00 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. V Unsatisfactory achievement in field /clinical placement or non-graded subject area. NR Grade not reported to Registrar's office. W Student has withdrawn from the course without academic penalty. Books and Required Automotive Technology: A Systems Approach by Erjavec Restole Publisher: Thomson Nelson Learning Canada ISBN: 9780176501679 Course Outcomes and - Describe the construction and operation of fuel delivery systems application of gasoline fuel - Describe the construction and operation of multiport and direct injection systems application of gasoline fuel - Describe the entering modes of operation Discribe Neeting input and utput devices - Describe the propose, construction and operation of primary fuel meeting input and utput devices		EES 9 Interact with others in groups or teams that contribute to effective working							
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 Perform diagnostic procedures on fuel delivery systems Identify and utilize appropriate personal protection and safety precautions when servicing automotive fuel systems Perform testing procedures to isolate problems with fuel pumps, regulators, injectors, filters, tanks and lines Perform injector balance testing Perform testing procedures for water and alcohol fuel contamination 	Learning Objectives:	operation, types, styles and application of gasoline fuel		 systems Describe the construction and operation of multiport and direct injection systems Describe the purpose, construction and operation of primary fuel metering input and output devices Explain fuel metering modes of operation 					
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Course Outcome 3 Learning Objectives for Course Outcome 3		procedu	res on fuel delivery	 safety precautions when servicing automotive fuel systems Perform testing procedures to isolate problems with fuel pumps, regulators, injectors, filters, tanks and lines Perform injector balance testing Perform testing procedures for water and alcohol fuel 					
		Course	Outcome 3	Learning Objectives for Course Outcome 3					

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	Perform diagnostic procedures on fuel i electronic control sy		 Use scan tools and computer based diagnostic equipment to access generic OBDII functions and manufacture specific information Read, diagnose and clear OBDII trouble codes Access and interpret live data stream information Access non continuously monitored test results Use bi-directional communications to operate and test output devices 			
	Course Outcome 4		Learning Objectives for Course Outcome 4			
	Identify and test emission control components		 Describe the construction and operation of emission control systems Identify emission control devices Use electronic test equipment to diagnose emission control system failures Perform exhaust emissions testing Perform catalytic convertor testing Perform a smoke test on an evaporative emission system 			
	Course Outcome 5	;	Learning Objectives for Course Outcome 5			
	Alternate fuels		 Describe fuel injection system requirements for E-85 flex fuel vehicles Explain the difference in fuel metering requirements for ethanol fuel blends Describe the construction and operation of propane and natural gas fueled fuel systems 			
Evaluation Process and Grading System:	Evaluation Type	Evaluati	on Weight	Course Outcome Assessed	1	
	Assignments	10%		Ourse Outcome Assessed	-	
	Employability Skills				-	
	Shop	45%			-	
		35%			_	

Date:

August 22, 2018

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

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