COURSE OUTLINE: CVC612 - FLUID POWER SYSTEMS

Prepared: Josh boucher
Approved: Corey Meunier, Dean, Technology, Trades, and Apprenticeship

Course Code: Title	CVC612: FLUID POWER SYSTEMS
Program Number: Name	6080: COMM VEHICLE-COMMON
Department:	MOTIVE POWER APPRENTICESHIP
Academic Year:	2024-2025
Course Description:	Upon successful completion the apprentice is able to perform basic calculations of pressure, force and area using imperial and systme international dunits (s.i.) measurement, is able to interpret basic hydraulic and pneumatic systems, is able to explain the operation of basic hydraulic and pneumatic components, is able to describe the different types of hydraulic fluid and their applications, is able to describe the inspection and testing procedures for hydraulic and pneumatic conductors and fittings, and is able to describe a regularly scheduled maintenance service for hydraulic and pneumatic systems - all according to manufacturers` recommendations and schematics.
Total Credits:	3
Hours/Week:	3
Total Hours:	24
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
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 6 Locate, select, organize, and document information using appropriate technology and information systems. 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:	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: 6th

Simulator Activities MF 102 (Student Workbook) by Fluidpower Training Institute
Publisher: FLUID POWER TRAINING INSTITUTE
Supplied by Sault Colleges Bookstore

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
2.1 Upon successful completion of this course, the apprentice is able to perform basic calculations of pressure, force, and area using Imperial and Systeme International d`unites (s.i.) measurements.	1.1 Fluid Power Fundamentals 2.1.1 Explain the fundamentals of hydraulic and pneumatic systems. 2.1.2 Describe terms and applications for hydraulics and pneumatics. 2.1.3 Perform calculations of force, pressure and area using basic laws.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2.2 Upon successful completion of this course, the student will demonstrate the ability to interpret basic hydraulic and pneumatic systems following manufacturers` recommendations and schematics.	2.2 Fluid Power Component and Graphic Symbols 2.2.1 Identify basic hydraulic components and related graphic symbols. 2.2.2 Describe the construction features and applications of schematics for pneumatic and hydraulic systems. 2.2.3 Draw a basic hydraulic and pneumatic circuit schematic and apply related graphic symbols.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
2.3 Upon successful completion of this course, the apprentice will be able to explain the operation of basic hydraulic and pneumatic components following manufacturers` recommendations.	2.3 Fluid Power Principles of Operation 2.3.1 Define the purpose and fundamentals of pneumatic and hydraulic components. 2.3.2 Describe the construction features of pneumatic and hydraulic components. 2.3.3 Explain the principles of operation of pneumatic and hydraulic components. 2.3.4 Locate pneumatic and hydraulic components on common system schematics.

Course Outcome 4	Learning Objectives for Course Outcome 4
2.4 Upon successful completion of this course, the apprentice will be able to describe the different types of hydraulic fluids and their applications following manufacturers` recommendations.	4.1 Fluid Power Hydraulic Fluids and Filters 2.4.1 Define the fundamentals of hydraulic fluids. 2.4.2 Describe the composition and properties of hydraulic fluids. 2.4.3 Describe the function and construction features of hydraulic fluid filters.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
2.5 Upon successful completion of this course, the apprentice will be able to describe the inspection and testing procedures for hydraulic and pneumatic conductors and fittings following manufacturers` recommendations.	2.5 Fluid Power Conductors and Connectors 2.5.1 Define the purpose of pneumatic and hydraulic conductors and connectors. 2.5.2 Describe the construction features, types, and application of conductors and connectors. 2.5.3 Describe the procedure to construct, inspect and test hydraulic conductors.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
2.6 Upon successful completion of this course, the apprentice will be able to describe a regularly scheduled maintenance service following manufacturers` recommendations for hydraulic and pneumatic systems.	2.6 Fluid Power Maintenance Schedule 2.6.1 Describe the fundamentals of regular hydraulic and pneumatic system maintenance service. 2.6.2 Describe the replacement procedures for hydraulic oil filters including identification of oil contamination, inspection of lines and water separators, and completion of a maintenance schedule check-off report.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments/Theory	30%
Shop Assigned Tasks	20%
Tests/Theory	50%

Date: November 12, 2024

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