

**DEPARTMENT OF TRANSPORTATION TRADES
THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – FALL 2022
AUGUST 29, 2022 - OCTOBER 21, 2022
HES141 VA12 – HYDRAULIC FUNDAMENTALS – BASICS –
2.0 (56 HOURS)**

INSTRUCTOR: Jeremy Parker

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OFFICE HOURS: 8.00am to 4.30pm

PREREQUISITE(S)/COREQUISITE: None

FALL 2021 DELIVERY:

In person – Onsite. This course is delivered in person at the NWP Fairview campus.
Note: NWP reserves the right to change the course delivery.

REQUIRED TEXT/RESOURCE MATERIALS:

Caterpillar Material

Hydraulic Fundamentals

Unit 1: Safety and Hydraulic Training Unit

Lesson 1 – Safety and Hydraulic Training Unit

Unit 2: Hydraulic Principles.

Lesson 1 – Hydraulic Principles

Unit 3: Hydraulic System Components

- Lesson 1 – Fluid Reservoirs and Hoses
- Lesson 2 – Hydraulic Fluids and Fluid Conditioners
- Lesson 3 – Hydraulic Pumps and Motors
- Lesson 4 – Pressure Control Valves
- Lesson 5 – Direction Control Valves
- Lesson 6 – Flow Control Valves
- Lesson 7 – Cylinders

**Alberta Apprenticeship and Industry Training Individual Learning Modules
Heavy Equipment Technician (HET)**

- 190103g – Hydraulic Fundamentals
- 190103h – Hydraulic System Components: Reservoir, Filters, Hoses and Coolers
- 190103i – Hydraulic System Components: Pumps, Valves, and Cylinders

CALENDAR DESCRIPTION: Basic principles of hydraulics, hydraulic oil, contamination control principles, basic systems and components are examined in this course. As well, the students are introduced to ISO schematics and symbology.

Delivery Option: Fairview Campus Only

CREDIT/CONTACT HOURS: Credits: 1.5 / Contact Hours: 56.

DELIVERY MODE(S): In person delivery

TRANSFERABILITY: None.

GRADING CRITERIA: Students must complete all required courses with a grade point average of no less than 2.7 and no failing (F) grades. A passing grade in this course is a **minimum of 70%.**

Hydraulic Fundamentals..... 56 / 240 hours = 23 %
of Semester 1 mark

Exams Average = _____ x 45%

Class Assignments/Quizzes = _____ x 30%

Shop Total _____ x 25%

HES 141 VA12 FINAL MARK = _____ %

NORTHWESTERN POLYTECHNIC			
GRADING CONVERSION CHART			
Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A+	4.0	90 – 100	EXCELLENT
A	4.0	85 – 89	
A-	3.7	80 – 84	FIRST CLASS STANDING
B+	3.3	77 – 79	
B	3.0	73 – 76	GOOD
B-	2.7	70 – 72	
F	0.0	67 – 69	FAIL
F	0.0	63 – 66	
F	0.0	60 – 62	
F	0.0	55 – 59	
F	0.0	50 – 54	
F	0.0	0 – 49	
WF	0.0	0	FAIL, withdrawal after the deadline

STUDENT RESPONSIBILITIES:

This is an adult education environment. Enrolment at Northwestern Polytechnic assumes that the student will become a responsible citizen of the College. As such, each student will display a positive work ethic, take pride in and assist in the maintenance and preservation of Institute property, and assume responsibility for his/her education by researching academic requirements and policies, demonstrating courtesy and respect toward others; and respecting instructor expectations concerning attendance, classroom and shop rules, safety, assignments, deadlines and appointments. Students are learning skills to prepare them for the work environment.

Following the guidelines in “Student Rights and Responsibilities” in the NWP College calendar assist us all in maintaining an adult learning environment. Please refer to the Student Rights and Responsibilities policy in the Northwestern Polytechnic Calendar or at www.nwpolytech.ca/downloads/documents/StudentRightsandResponsibilities.pdf.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the NWP Calendar at <http://www.nwpolytech.ca/programs/calendar/> Pages 44 to 46 or the College Policy on Student Misconduct: Plagiarism and Cheating at <http://www.nwpolytech.ca/about/administration/policies/>. **

**Note: all Academic and Administrative policies are available on the same page.

COURSE SCHEDULE/TENTATIVE TIMELINE:

- Fundamentals
- Safety
- Components, Function and Nomenclature
- Hydraulic System and Operation
- Lines and Fittings
- Valves – Control and Safety
- Actuators
- Service