



DEPARTMENT OF HEAVY EQUIPMENT
HEAVY EQUIPMENT SERVICE COURSE OUTLINE – FALL 2013
SEPTEMBER 3 – OCTOBER 25, 2013
HES141 – HYDRAULIC FUNDAMENTALS – BASICS - 1.5 (48 HOURS)

INSTRUCTOR:	Darcy Moss Richard Byam Rob Young	PHONE:	780.835.6765 780.835.6723 780.835.6730
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OFFICE HOURS: 8.00am to 4.30pm

PREREQUISITE(S)/COREQUISITE: None

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

Caterpillar Service Industry continued . . .

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: 48.

DELIVERY MODE(S): Lecture and lab.

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 **48 / 240 hours = 20 %
of Semester 1 mark**

Exams Average = _____ **x 45%**

Class Assignments/Quizzes = _____ **x 30%**

Shop Total _____ **x 25%**

HES 141 FINAL MARK = _____ %

GRANDE PRAIRIE REGIONAL COLLEGE			
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 Grande Prairie Regional College 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 GPRC College calendar assist us all in maintaining an adult learning environment. Please refer to the Student Rights and Responsibilities policy in the Grande Prairie Regional College Calendar or at www.gprc.ab.ca/downloads/documents/StudentRightsandResponsibilities.pdf.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the GPRC Calendar at <http://www.gprc.ab.ca/programs/calendar/> Pages 44 to 46 or the College Policy on Student Misconduct: Plagiarism and Cheating at <http://www.gprc.ab.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