



DEPARTMENT OF HEAVY EQUIPMENT
THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – WINTER 2017
FEBRUARY 27 – APRIL 21, 2017
HES562 VA53 – ON HIGHWAY MACHINE SYSTEM DIAGNOSTICS/REPAIR

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1.5 CREDITS (48 HOURS)

INSTRUCTOR: Harry Frykas **PHONE:** 780.835.6795
OFFICE: FM4 101 **E-MAIL:** hfrykas@gprc.ab.ca
OFFICE HOURS: 8.00am to 4.30pm

PREREQUISITE(S)/COREQUISITE: Successful completion of Blocks 1 through 4.
Please read all modules before they are presented in class.

REQUIRED TEXT/RESOURCE MATERIALS:

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

- 190403cA – Air Conditioning Testing and Service – Part A
- 190403cB – Air Conditioning Testing and Service – Part B
- 190401a – Clutch Fundamentals and Service (On-Road)
- 190401b – Driveline Fundamentals and Service
- 190401dA – Transmission Fundamentals – Part A
- 190401dB – Transmission Fundamentals – Part B
- 190401e – Transmission Shifting

Caterpillar Material

Machine Diagnostics:

Unit 4: Electrical Systems Diagnostics.

Electrical Systems Diagnostic Principles.

Air Conditioning Fundamentals:

Unit 1: Fundamentals of AC

Lesson 2: Machine AC System Operation

Unit 3: Service Procedures

Lesson 1: Machine AC Service

Unit 4: Troubleshooting

Lesson 1: Machine AC Troubleshooting

Lesson 2: AC Repair

Power Train I:

Unit 2: Couplings

Lesson 1: Flywheel Clutch

Unit 3: Transmissions

Lesson 1: Manual Shift Transmissions

Machine Specific:

As per available units.

CALENDAR DESCRIPTION: Primarily a lab based course where the student's knowledge will be challenged and troubleshooting skills developed. Students will be required to successfully diagnose and repair On Highway machine systems in a real world setting.

CREDIT/CONTACT HOURS: Credits: 1.5 / Contact Hours: 48.

DELIVERY MODE(S): Primarily lab based.

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%**.

**HES562 Air Conditioning / Powertrain Diagnostics / Repair..... 48/240 hours = 20 %
of Semester 5 mark**

Exams Average = _____ **x 30%**

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

Shop Total _____ **x 40%**

HES 562 VA53 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	

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:

Machine Diagnostics

- Electrical System Diagnostics

Machine Specific

- 980K Wheel Loader - Electro Hydraulic Control System.
- Compact Construction Equipment.
- 320E Excavator.
- D5H Crawler
- D7E Crawler
- Articulated Dump Truck.
- Skid Steers
- M Series Motor Graders.
- Challenger Tractor
- IT Integrated Tool Carrier
- 426 Backhoe
- CP-54B Vibratory Compactor