



**DEPARTMENT OF HEAVY EQUIPMENT**  
**THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – FALL 2016**  
**AUGUST 29 – OCTOBER 21, 2016**  
**HES362 VB32– ENGINE DIAGNOSTICS/REPAIR –**  
**1.5 CREDITS (40 HOURS)**

<b>INSTRUCTOR:</b>	Alan Hagen/Richard McGrail/Rudy Hrynkiw	<b>PHONE:</b>	Al 780.835.6737 Richard 780.835.6778 Rudy 780.835.6757
<b>OFFICE:</b>	FM4 101	<b>E-MAIL:</b>	<a href="mailto:ahagen@gprc.ab.ca">ahagen@gprc.ab.ca</a> <a href="mailto:rmcgrail@gprc.ab.ca">rmcgrail@gprc.ab.ca</a> <a href="mailto:rhrynkiw@gprc.ab.ca">rhrynkiw@gprc.ab.ca</a>

**OFFICE HOURS:** By appointment

**PREREQUISITE(S)/COREQUISITE:** Successful completion of Blocks 1 and 2 and completion of HES190, 290 & 390 work placements.

**REQUIRED TEXT/RESOURCE MATERIALS:**

**Caterpillar Material**

***Engine Diagnostics and Repair:***

*Unit 1: Diagnosis and Troubleshooting.*

Lesson 1 – Diagnosis and Troubleshooting.

*Unit 2: Engine Oil and Lubrication Systems.*

Lesson 3 – Lubrication System Testing and Troubleshooting.

*Unit 3: Engine Air Induction Systems.*

Lesson 2 – Caterpillar Air Induction System Testing.

Lesson 3 – Air System Troubleshooting.

*Unit 4: Engine Cooling Systems.*

Lesson 2 – Cooling System Calculations.

Lesson 3 – Cooling System Troubleshooting.

Lesson 4 – Cooling System Maintenance.

*Unit 5: Engine Fuel Systems.*

Lesson 1 – Fuel System Inspection and Testing.

Lesson 2 – Fuel System Calibration and Monitoring

Lesson 3 – Engine Timing

**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 engine faults in a real world setting.

**CREDIT/CONTACT HOURS:** Credits: 1.5 / Contact Hours: 40

**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%.**

**HES362 Engine Diagnostics / Repair ..... 40/240 hours = 17 %  
of Semester 3 mark**

**Exams Average = \_\_\_\_\_ x 30%**

**Class Assignments/Quizzes/DPC = \_\_\_\_\_ x 30%**

**Shop Total \_\_\_\_\_ x 40%**

**HES 362 VB32 FINAL MARK = \_\_\_\_\_ %**

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

### **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](http://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:**

### **Engine Diagnostics and Repair**

- Diagnosis and Troubleshooting
- Engine Oil and Lubrication Systems
- Engine Air Induction Systems
- Engine Cooling Systems
- Engine Fuel Systems