



**DEPARTMENT OF HEAVY EQUIPMENT**  
**THINKBIG SERVICE TECHICIAN COURSE OUTLINE – WINTER 2015**  
**JANUARY 5 – FEBRUARY 27, 2015**  
**HES251 – AIR CONDITIONING SYSTEMS - 1.5 (48 HOURS)**

**INSTRUCTOR:** Al Hagen  
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**OFFICE HOURS:** 8.00am to 4.30pm

**PREREQUISITE(S)/COREQUISITE:** Successful completion of Semester 1.

**REQUIRED TEXT/RESOURCE MATERIALS:**

**Caterpillar Material**

***Air Conditioning Fundamentals:***

*Unit 1: Fundamentals of AC*

- Lesson 1: Principles of Heat Transfer
- Lesson 2: Machine AC System Operation

*Unit 2: Governmental Regulations*

- Lesson 1: Government Regulations

*Unit 3: Service Procedures*

- Lesson 1: Machine AC Service
- Lesson: 2: AC Materials and Tools

*Unit 4: Troubleshooting*

- Lesson 1: Machine AC Troubleshooting
- Lesson 2: AC Repair

*Unit 5: 300 Series Excavator AC*

- Lesson 1: 300 Series AC

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

- 190403a – Air Conditioning Fundamentals
- 190403b – Heating, Ventilation and Air Conditioning (HVAC) Control Systems
- 190403cA – Air Conditioning Testing and Service – Part A
- 190403cB – Air Conditioning Testing and Service – Part B

**CALENDAR DESCRIPTION:** This course examines air conditioning systems found in on and off highway equipment. Systems, components, controls, service, troubleshooting and repair, and environmental stewardship are included topics.

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%**.

**Air Conditioning Systems..... 48 / 240 hours = 20 %  
of Semester 2 mark**

**Exams Average = \_\_\_\_\_ x 45%**

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

**HES251 FINAL MARK = \_\_\_\_\_ %**

| GRANDE PRAIRIE REGIONAL COLLEGE |                    |                       |                      |
|---------------------------------|--------------------|-----------------------|----------------------|
| GRADING CONVERSION CHART        |                    |                       |                      |
| Alpha Grade                     | 4-point Equivalent | Percentage Guidelines | Designation          |
| A <sup>+</sup>                  | 4.0                | 90 – 100              | EXCELLENT            |
| A                               | 4.0                | 85 – 89               |                      |
| A <sup>-</sup>                  | 3.7                | 80 – 84               | FIRST CLASS STANDING |
| B <sup>+</sup>                  | 3.3                | 77 – 79               |                      |
| B                               | 3.0                | 73 – 76               | GOOD                 |
| B <sup>-</sup>                  | 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](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:

- Air Conditioning Fundamentals