

**TRANSPORTATION TRADES DEPARTMENT**  
**THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – SPRING 2023**  
**APRIL 24 – JUNE 16, 2023**  
**HES251 VB53 – AIR CONDITIONING SYSTEMS - 1.5 (48 HOURS)**

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

<b>INSTRUCTOR:</b>	Rob Young	<b>PHONE:</b>	780.835.6786
<b>OFFICE:</b>	FPS108	<b>E-MAIL:</b>	robyoung@gprc.ab.ca
<b>OFFICE HOURS:</b>	8.30am to 4.30pm.		

**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

**PREREQUISITE(S)/COREQUISITE:** Successful completion of courses for Block 1-4.  
Please read all modules before they are presented in class.

## **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

**DELIVERY MODE(S):**

In person – Onsite. This course is delivered in person at the NWP Fairview campus.

Note: NWP reserves the right to change the course delivery.

**COURSE OBJECTIVES:**

**LEARNING OUTCOMES:**

**TRANSFERABILITY:** None.

**EVALUATIONS:**

**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 %**

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

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

**Shop = \_\_\_\_\_ x 25%**

**HES251 VB53 FINAL MARK = \_\_\_\_\_ %**

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

## **COURSE SCHEDULE/TENTATIVE TIMELINE:**

**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](http://www.nwpolytech.ca/downloads/documents/StudentRightsandResponsibilities.pdf).

## **STATEMENT ON PLAGIARISM AND CHEATING:**

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the Northwestern Polytechnic Calendar at <https://www.nwpolytech.ca/programs/calendar/> or the Student Rights and Responsibilities policy which can be found at <https://www.nwpolytech.ca/about/administration/policies/index.html>.

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

## **Additional Information (Optional):**