

## INDUSTRY PARTNER TRAINING DEPARTMENT

### THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – WINTER 2025

#### HES231 VA22 AIR BRAKES – 2.0 CREDITS (52 HOURS) SYSTEMS – 8 WEEKS (3.5-0-3)

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.

**INSTRUCTOR:** Stefan Caers

**PHONE:** 780.835.6733

**OFFICE:** FPS 119

**E-MAIL:** [scaers@nwpolytech.ca](mailto:scaers@nwpolytech.ca)

**OFFICE HOURS:** 8.00am to 4.30pm

**CALENDAR DESCRIPTION:** This course covers the fundamentals and operation of pneumatically actuated braking systems including component function and diagnostics. A section on antilock brakes is included.

**PREREQUISITE:** All semester 1 courses: HES 110, HES 121, HES 131, HES 141, HES 190. Successful completion of the First Period AIT Exam.

**COREQUISITE:**

**REQUIRED TEXT/RESOURCE MATERIALS:**

**Caterpillar Material**

*Power Train II*

*Unit 2: Brakes*

Lesson 2 – Brake Systems

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

- 190105a – Air Brake System Fundamentals
- 190105b – Air Brake System Mechanical Components
- 190105cA – Truck / Tractor Air Brake System Components – Part A
- 190105cB – Truck / Tractor Air Brake System Components – Part B
- 190105d – Trailer Air Brake System Components
- 190105e – Air Brake System Testing and Service
- 190105f – Air Antilock Brake System Fundamentals
- 190402d – Air Antilock Brake Systems
- 190402e – Air Antilock Brake System Diagnosis
- 190402f – Hydraulic Antilock Brake Systems

**DELIVERY MODE(S):** In person delivery. Fairview Campus Only

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

**LEARNING OUTCOMES:** After completing this unit, students will be able to:

- Identify common brake system components and explain the purpose of those components.
- Explain the operation of various types of brake systems.

**TRANSFERABILITY:** None.

**EVALUATIONS:**

**Air Brakes** ..... **52 hours**

*Exams Average* = \_\_\_\_\_ x 35%

Class Assignments/Quizzes = \_\_\_\_\_ x 35%

*Shop Total* \_\_\_\_\_ x 30%

**HES231 VZ21 FINAL MARK = \_\_\_\_\_ %**

**GRADING CRITERIA:** Students must complete all required courses with no failing grades. A passing grade in this course is a **minimum of 70%**. A student can be removed from the program if a 70% grade is not reached for the course.

Grades for this course will be assigned as a percentage.

**COURSE SCHEDULE/TENTATIVE TIMELINE:**

- Fundamentals
- Mechanical Components
- Truck/Tractor Air-Brake System Components
- Trailer Air-Brake System Components
- Testing and Service
- Air Antilock Brake Systems
- Air Antilock Brake Diagnosis

**STUDENT RESPONSIBILITIES:**

This is an adult education environment. Enrolment at Northwestern Polytechnic assumes that the student will become a responsible citizen of NWP. 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. Non-academic misconduct, including the possession, use, or distribution of intoxicants, will be addressed through the Student Rights and Responsibilities policy.

Students are expected to attend all class and shop hours. Students who miss more than 21 hours or 3 days of classes may be removed from the course.

Absences will be monitored and recorded by the instructors.

- Upon reaching 7 hours missed time in a single semester the student will be required to meet with the instructor.
- Upon reaching 14 hours missed time in a single semester the student will be required to meet with the instructor and program Chair.

- Upon reaching 21 hours missed time in a single semester the student will be required to meet with the program Chair, the Instructor and the Dean to evaluate the students' ability successfully continue in the Think BIG program.

#### **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):**