

**DEPARTMENT OF TRANSPORTATION TRADES**  
**THINKBIG SERVICE TECHICIAN COURSE OUTLINE – FALL 2024**  
**HES121 VA11 – INTRODUCTION TO MACHINE SYSTEMS –**  
**3.0 (80 HOURS) (5-0-5)**

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:** Ralph Baker  
Welding Instructor TBA

**PHONE:** Office 780.835.6778

**OFFICE:** FAC 119

**E-MAIL:** rbaker@nwpolytech.ca

**OFFICE HOURS:** 8 AM to 4:30 PM

**CALENDAR DESCRIPTION:** This course provides the foundation for the Heavy Equipment Service Program. The student will be introduced to the major systems found on heavy equipment, the components that comprise these systems, their functions and service techniques.

**PREREQUISITE(S)**

**COREQUISITE:**

**REQUIRED TEXT/RESOURCE MATERIALS:** Supplied

**DELIVERY MODE:**

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

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

**LEARNING OUTCOMES:**

**TRANSFERABILITY:** None

**EVALUATION:**

Introduction to Machine Systems 80 / 240 hours = 33 %

of Semester 1 final mark

Exams/quizzes Average = \_\_\_\_\_ x 30%

Class Assignments/projects = \_\_\_\_\_ x 40%

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

**HES 121 VA11 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:**

**Overview of Engines**

- Fuel Types
- Configurations
- Components and Their Locations
- Cooling
- Lubrication
- Nomenclature
- Accessories
- Safety
- Servicing

**Overview of Electrical**

- Components and Their Locations

- Configurations
- Nomenclature
- Belts and drives
- Safety
- Servicing

#### **Overview of Hydraulic Systems**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety
- Servicing

#### **Overview of Power Train**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety
- Servicing

#### **Overview of Steering**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety
- Servicing

#### **Overview of Brakes**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety
- Servicing

#### **Overview of Wheels, Tires and Tracks**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety

- Servicing

### **Overview of Implements**

- Components and Their Locations
- Configurations
- Nomenclature
- Safety
- Servicing

### **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):**