

## DEPARTMENT OF TRANSPORTATION TRADES

### THINKBIG SERVICE TECHNICIAN COURSE OUTLINE – FALL 2025

### HES211 VZ21 – STARTING AND CHARGING SYSTEMS – 2.0 CREDITS

**(56 HOURS)8 WEEKS**

**(3.5-0-3.5)**

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:** Darcy Moss

**PHONE:** 780.835.6765

**OFFICE:** FPS119

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

**OFFICE HOURS:** 8:00AM to 4:30PM

#### **CALENDAR DESCRIPTION:**

This course examines 12- and 24-volt charging and 12, 24 and non-electrical starting systems. There is an emphasis on testing and troubleshooting.

Delivery Option: Fairview Campus Only

#### **PREREQUISITE(S)**

Successful completion of all block one courses HES110, HES121, HES131, HES 141 and including HES190 Work placement.

#### **COREQUISITE:**

#### **REQUIRED TEXT/RESOURCE MATERIALS:**

##### **Caterpillar Material**

##### **Electrical Fundamentals:**

*Unit 4: Machine Electrical Systems*

Lesson 2: Charging System

Lesson 3: Starting System

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

- 190205a – Charging System and Control Circuit Fundamentals
- 190205b – Charging System Testing and Service
- 190205c – Cranking System Fundamentals and Motor Drives
- 190205d – Cranking System Control Circuits
- 190205e – Cranking System Testing and Service
- 190205f – Non-Electric Cranking Systems

### 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.

### LEARNING OUTCOMES:

### TRANSFERABILITY:

None.

### EVALUATIONS:

Starting and Charging Systems	56 / 240 hours
<b>Grade Item</b>	<b>Value</b>
Exams Average	45%
Class Assignments/Quizzes	30%
Shop Total	25%
<b>FINAL MARK</b>	

### GRADING CRITERIA:

Students must complete all required courses with no failing (F) grades. A passing grade in this course is a **minimum of 70%**. Grades for this course will be assigned as a percentage. Failure to achieve a minimum grade of 70% will result in removal from the Think BIG program.

### COURSE SCHEDULE/TENTATIVE TIMELINE:

Will be posted in the classroom.

- 12, 24 and Series Parallel Systems
- Starting Motors

- Starter Drive Systems
- Thermal Protection
- Safety Systems
- Troubleshooting
- Alternators
- Generators
- Troubleshooting

**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 program 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 instructor, program chair and the Dean to evaluate the students' ability successfully continue in the Think BIG program.

**STATEMENT ON ACADEMIC MISCONDUCT:**

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at

<https://www.nwpolytech.ca/about/administration/policies/index.html>

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