

DEPARTMENT OF SCIENCE
COURSE OUTLINE – Fall 2025

TT 2301: Industrial Trades III – 3 (3-0-3) 90 Hours over 15 Weeks

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.

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CALENDAR DESCRIPTION: This course will cover the theory and practical applications of piping designs and connections, steam traps, water hammer, insulation, valves, and actuators. Electrical theory, AC and DC machines, switchgear, electrical safety, and electrical calculations will also be covered. Finally, students will learn about control loops and strategies, instrument control devices, and distributed logic control.

PREREQUISITE(S)/COREQUISITE: 4th class power engineering certificate of competency.

REQUIRED TEXT/RESOURCE MATERIALS:

The following textbook and resource materials are required for the second year of the PET program, including courses PW 2301, PW 2320, TT 2301, PC 2301, PW 2302, PW 2330, and TT 2302. All books are from PanGlobal.org

- 3rd Class Part A Textbook Set [Ed. 3.0]
- 3rd Class Part B Textbook Set [Ed. 3.0]
- Academic Supplement [Ed. 2.0] – Students may have this from year one.
- 2018 ASME Academic Extract (Vol 1) – Students may have this from year one.
- 2018 ASME Academic Extract (Vol 2)

The 3rd Class books and the 2018 ASME Academic Extract (Vol 2) are available as a bundle:

<https://mypower.panglobal.org/pshop/3rd-class/229-3rd-class-standard-collection.html>

NOTE: Older editions of Power Engineering textbooks are not acceptable. The changes between editions are enough to impact the likelihood of passing the ABSA exams.

DELIVERY MODE(S): Lecture style presentation of material in person at the NWP Grande Prairie campus. Laboratory provides hands-on experience and will be delivered at the Grande Prairie campus.

LEARNING OUTCOMES:

By the end of this course students will:

- Understand codes and standards for pressure piping.
- Identify and describe piping types, sizes, and materials.
- Examine non-metallic piping materials and applications.
- Learn about strength and temperature effects on piping.
- Understand piping connection methods and gasket selection.
- Explore expansion devices, supports, and anchors.
- Study steam traps, water hammer effects, and insulation.
- Grasp DC and AC electrical theory.
- Learn about machines, generators, motors, and transformers.
- Understand AC systems, safety, and electrical calculations.
- Explore control loops, strategies, and devices.
- Understand distributed control systems, PLCs, and operator interfaces.

TRANSFERABILITY: Nontransferable, there are no transfer agreements in place.

EVALUATIONS:

Assignments:	10%
Lab Assignments:	10%
Unit Exams:	30%
Final Exam:	50%

GRADING CRITERIA: Grades for this course will be assigned as a percentage. The minimum passing grade is 65%

COURSE SCHEDULE/TENTATIVE TIMELINE: 15 weeks. Unit exams will be held after chapters and units are completed.

STUDENT RESPONSIBILITIES:

Students must attend a minimum of 80% of all classes to successfully complete the course.

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.