DEPARTMENT OF SCIENCE

COURSE OUTLINE –Winter 2026

PW 1430 : Thermal-Fluid Systems I – 3 (3-0-0) 45 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.

INSTRUCTOR:	Curran Speager	**PHONE:**	(780)539-2865
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OFFICE HOURS:			

CALENDAR DESCRIPTION: This course introduces power engineering students to refrigeration, HVAC, and heating/cooling systems, covering the principles, maintenance, and operation of various components and control systems strategies.

PREREQUISITE(S)/COREQUISITE: None

REQUIRED TEXT/RESOURCE MATERIALS:

The following textbook and resource materials are required for the first year of the PET program, including courses PW 1400, PW 1401, PW 1420, IT 1401, PC 1401, PW 1402, PW 1430, and IT 1402. All books are from PanGlobal.org

- 4th Class Textbook Set – Part A [Ed. 3.5]
- 4th Class Textbook Set – Part B [Ed. 3.5]
- Preparatory Math Topics for Power Engineering [Ed. 2]
- Academic Supplement [Ed. 2.0]
- 2018 ASME Academic Extract (Vol 1)

The first 4 books are available as a bundle

4th Class – Standard Collection

https://mypower.panglobal.org/pshop/4th-class/225-4th-class-standard-collection.html

2018 ASME Academic Extract (Vol 1)

https://mypower.panglobal.org/pshop/code-extracts-supplement/198-2018-asme-academic-extract-vol-1.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.

LEARNING OUTCOMES: On completing this course students will:

- Understand basic concepts of refrigeration and refrigerants.
- Understand the operation and maintenance requirements of compression and absorption refrigeration systems.
- Identify various components used in HVAC systems.
- Understand operating principles and maintenance procedures of steam heating systems.
- Understand operating principles and maintenance procedures of hot water heating systems.
- Understand components of steam heating and hot water heating systems.
- Gain an understanding of common heating and HVAC systems.
- Apply control systems strategies used in HVAC systems.

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

EVALUATIONS:

Assignments:	10%
Unit Exams:	40%
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.