NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2023

POF 407 (VA2): 4th Class Power Engineering Power Lab B1 – 1 (0-0-9) 44 Hours over 5 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:	Wells Darling	**PHONE:**	780-539-2819
OFFICE:	J206	**E-MAIL:**	wdarling@nwpolytech.ca
OFFICE HOURS:	As posted		

CALENDAR DESCRIPTION: This lab will help students work on the materials covered in the PE4B1 book. This will include working on heating boilers, safety devices, plant maintenance, lubrication and water treatment.

PREREQUISITE(S)/COREQUISITE:
POF 401, POF 402, and POF 406 - 4th class A1, A2, and B1 theory

REQUIRED TEXT/RESOURCE MATERIALS:

- Flame retardant coveralls (often required for industry)
- CSA (green triangle) approved work boot, 6" high minimum (typical industry standard)
- Clipboard with folding cover
- 1.5" 3-ring binder
- Leather gloves
- Safety eyewear. Prescription glasses are required to be safety rated or use safety goggles.
- CSA approved hard hat
- Hearing protection
- Lock for locker
- Sealable water bottle

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 Fairview campus.

COURSE OBJECTIVES: This is an introduction to power plant and heating plant design, layout, and equipment. Students learn to start up and shut down boilers, and open / dismantle, and inspect plant equipment. Welding and related pipe labs are incorporated as well.

LEARNING OUTCOMES:

- Discuss the importance of safety in the Power Lab and Chemistry Lab
- Discuss the parts of the Firetube boiler, prestart up checks, start up sequence, and shut down sequence
- Demonstrate the prestart checks and start up procedures for the Firetube boiler
- Discuss the parts of the water tube boiler, prestart up checks, start up sequence, and shut down sequence
- Demonstrate the prestart up checks and start up procedures for the Watertube boiler
- Discuss the safety loops for the burner management systems.
- Demonstrate how to check each safety device

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

EVALUATIONS:

- 20% Safety
- 20% Participation
- 40% Competency
- 20% End of Lab Report (like a shift change report)

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	94-100		C+	2.3	68-71
A	4.0	89-93		C	2.0	64-67
A-	3.7	84-88		C-	1.7	60-63
B+	3.3	80-83		D+	1.3	55-59
B	3.0	76-79		D	1.0	50-54
B-	2.7	72-75		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE: 1 week, March 6 – March 10, 2023

STUDENT RESPONSIBILITIES: Students are responsible for wearing, cleaning, and maintaining their PPE (personal protective equipment), as well as cleaning sanitizing tools and equipment that they use. Students are responsible for working in the Power Lab in the safest manner possible by following the safety rules and instruction from the Instructors.
Students enrolled in the Power Engineering Courses are mandated by ABSA to have 100% attendance in the Power Labs in order to obtain credit for the program. Failure to attend all labs will result in a failing grade in the course and in the 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.