PECOM 4500, 200 Hour Power Lab Course

12 credits, 200 Hours

The 200 Hour Power Lab course is a five-week program that will credit 200 hours of steam time required by Alberta Boilers Safety Association to acquire 4th Class certification.

Course Description

During this intensive training lab students will gain experience hands on learning in safe operation and maintenance of boilers, turbine/generator, combustion engine, refrigeration and HVAC systems, and other associated auxiliary equipment in heating plants, oil sands operations, and other industrial settings.

Pre and Co-requisites

Completion of 4th Class Part A and B Power Engineering Theory Course, or an equivalent program

Course Learning Outcomes (CLOs)

Upon successful completion of the course, the student shall be able to:

CLO1 - Actively *exercise effective communication within a teamwork environment, following safe work practices as applied in the Keyano College Power Lab.*

CLO2 - Safely *and efficiently operate:*

- *Cleaver Brooks Firetube & Watertube boilers and auxiliary equipment.*
- *An Elliott steam turbine/generator and auxiliary equipment.*
- *A Caterpillar internal combustion engine and auxiliary equipment, in accordance with manufacturers' specifications.*
- *A Multi-Stack refrigeration system and Engineered Air HVAC system.*
- *The Cleaver Brooks deaerator, heat exchanger, feed pumps and other auxiliary equipment on a typical boiler.*
- *An Ingersoll Rand reciprocating & screw air compressor and auxiliary equipment.*
- *Safely monitor and operate electric motors and components.*
- *Safely operate and maintain the equipment of a feed water treatment system, in accordance with manufacturers' specifications.*
- *Apply safe practices and methodologies for water testing, treatment, storage and disposal.*
- *Explain the operation, maintenance and inspection requirements of all equipment, auxiliaries and components within an operational Power Lab.*

The 4th Class Power Lab follows the AB-533 acceptance criteria.

Evaluation

Assessment Type	Grade
Independently accesses/retrieves the tools& documentation required to perform competency (i.e., current SOP, form, Moodle etc.) in a timely manner.	Pass/Fail
Competency checklist and/or SOP is fully adhered to, with NO “critical” steps missed.	Pass/Fail
Accurate completion of ALL required documentation for the competency (i.e., form, logbook, Moodle, etc.)	Pass/Fail
Demonstrates safe work practices (including communication, follows directions, teamwork, etc.)	Pass/Fail
Drawings: All drawings are PFD’s • Boiler Feed Water • Header • Chiller • Glycol • Air • Master (BFW, Header & Glycol)	Pass/Fail

Grades assigned for Pass/Fail courses are not used in calculation of GPA.

Course Completion Requirements

Students are assessed on a Pass or Fail basis and must perform all tasks safely. Each student will have 3 opportunities to demonstrate competence (self-assess, peer-assess, instructor assess) to ensure competency attainment & consistence. Most competencies will be assessed individually; however, where appropriate, some will be assessed as teams.

The instructor will have evidence tracking of student hours and competency demonstrations. The Chief Engineer will verify students’ successful demonstration of all competencies and attendance of the minimum 200 hours. The Chief Engineering will then approve and sign the AB-66b Application for College Practicum for Power Engineers Experience. A copy of the AB-66b forms is submitted to ABSA and students receive the original AB-66b form.

Grading Notation:

Notation	Description	Notes
P/F	Pass/Fail	Grades assigned for Pass/Fail courses are not used in calculation of GPA

Land Acknowledgement

We respectfully acknowledge that Keyano College is on Treaty No. 8 Territory, the ancestral and traditional territory of the Cree, Dene, and Métis people.

Review Date: March 4, 2024