

## What is Power Engineering?



A "Power Engineer" is a technically skilled and knowledgeable professional who is certified and responsible to safely and efficiently operate equipment and processes that are regulated by boiler and pressure vessel legislation.

Power Engineers are also known as:

- Steam Engineer
- Stationary Engineer
- Operating Engineer
- Steam Plant Operator
- Steam Plant Operator
- Boiler Operator
- Building Operator
- Refrigerator Plant Operator

The basis of certification is the operation of steam boilers, pressure vessels, fired heaters, and refrigeration systems. However, the practical responsibilities also extend to other related processes and utilities, which involve auxiliary equipment as pumps, compressors, electrical generators, motors, steam turbines, gas turbines, heat exchangers, condensers, cooling towers, water treatment systems, air conditioning systems, etc. The list is very extensive since Power Engineers serve many different industries.

**The Power Engineering 20L and 30L courses are locally developed courses. Students receive a high school credit for each course. Each course has a tuition fee of \$500, which includes all materials, textbooks, practical training costs, and mobile lab fees. The curriculum for the courses has been adopted from SOPEEC - Standardization of Power Examinations Committee for a 5th Class Power Engineer. Upon successful completion of both courses, students will have the opportunity to write the TSASK 5<sup>th</sup> Class Power Engineering Exam, (\$125 Exam Fee to Technical Safety Authority of Saskatchewan). If students are successful on this exam then they will receive a 5<sup>th</sup> Class Power Engineering industry recognized certificate.**

### Power Engineering 20L

- Unit 1 – Boiler Details
- Unit 2 – Boiler Fittings and Controls
- Unit 3 – Boiler Operation, Maintenance
- Unit 4 – Fuels and Combustion
- Unit 5 – Piping and Valves
- Unit 6 – Thermoil Systems
- Unit 7 – Heating Systems/ Human Comfort
- Unit 8 – Basic Math

### Power Engineering 30L

- Unit 1 – Plumbing & Auxiliaries
- Unit 2 – Lighting
- Unit 3 – Refrigeration
- Unit 4 – Refrigeration & AC
- Unit 5 – Pumps & Air Compressors
- Unit 6 – Distributed Generation
- Unit 7 – Provincial Acts, Regulations
- Unit 8 – Applied Science
- Unit 9 – Safety
- Unit 10 – Electricity
- Unit 11 – Welding
- Unit 12 – Water Treatment

# Introduction to Power Engineering

## What You Need to Know

### What is Introduction to Power Engineering?

- Dual Credit Classes
  - 2 credits towards grade 12 graduation
  - 5<sup>th</sup> Class Power Engineering Certification

### What is involved?

- **Theory:** 1 hour of online class each day in Semester I - Intro and Semester II
  - Read textbooks
  - Watch online videos
  - Complete online quizzes and take notes
  - Complete online exams
- **Work Experience:** 50 hours in Semester I and another 50 hours in Semester II
  - Semester I
    - 3 – 8 hour shifts at a Sask Power Plant – Friday, Saturday and Sunday
    - 3 – 8 hour shifts at the Mobile Lab – Friday, Saturday and Sunday
  - Semester II
    - 3 – 8 hour shifts at a Sask Power Plant – Friday, Saturday and Sunday
    - 3 – 8 hour shifts at the Mobile Lab – Friday, Saturday and Sunday
  - Students supply their own CSA approved (green triangle) work boots.
  - Students need to arrange for transportation to the work-study – transportation is not provided

### 5<sup>th</sup> Class Certification

- Why get certified?
  - Enhances your ability to be selected into a Post- Secondary Power Engineering program
  - Provides you the certification for Jobs needing 5<sup>th</sup> Class Power Engineering certification
  - Looks great on a resume
- What's involved in becoming certified?
  - Students need to successfully complete both Power Engineering courses (theory and work experience)
  - Write the provincial TSask exam and achieve a minimum of 65%
  - Cost of exam is about \$110