POWER ENGINEERING PROGRAM

11-MONTH PROGRAM (INTERNATIONAL)
KINDERSLEY, SASKATCHEWAN, CANADA
INCLUDES FOURTH AND THIRD CLASS POWER ENGINEERING CERTIFICATION

CAREER OPPORTUNITIES

Power engineers operate and maintain reactors, turbines, boilers, generators, stationary engines and auxiliary equipment to generate electrical power and to provide heat, light, refrigeration and other utility services for commercial, industrial and institutional buildings and other work sites.

They are employed by power generation plants, electrical power utilities, heavy oil upgraders and gas processing plants, manufacturing plants, mines, hospitals, universities and government and commercial establishments.

EARNING POTENTIAL

In 2016, the average annual wage range for full-time power engineers or process operators in Saskatchewan was $66,100 - $99,000 according to the Saskatchewan Ministry of the Economy. Employees may earn more or less depending on their employer, location, size of company, level of training, experience and hours worked.

SEPTEMBER 2018 to JULY 2019

WHAT YOU WILL LEARN

This program covers basic principles of mathematics, mechanics, thermodynamics, boiler construction, combustion, boiler design and fittings, welding, compression, refrigeration, boiler operation and feed water treatment.

For the Fourth Class component students will :

a) Work through the 30 SAIT Fourth Class Power Engineering module (PWEN 202 and PWEN 203)

b) Participate in 160-hour SIIT accredited power lab in Meadow Lake

c) Write the SAIT Part A and B exam. This will satisfy the Technical Safety Authority of Saskatchewan (TSASK)'s steam time requirements at the Fourth Class level.

d) Write TSASK provincial exams

Optional components include:

a) Safety courses

b) One-week practicum

For the Third Class component students will:

a) Work through the 60 SAIT Third Class Power Engineering modules (PWEN 130, 131, 138 and 139)

Optional component includes:

a) Safety courses

All students will be provided the opportunity to write the Technical Safety Authority of Saskatchewan (TSASK)'s provincial exams prior to completion of the program. Completion of these exams allow graduates to work in the certified profession of Power Engineering in Saskatchewan.

ENTRANCE REQUIREMENTS

- Grade 12 certification including Foundations of Math 30 or Pre-Calculus 30
- Minimum English Language Requirement-International English Language Testing System (IELTS) overall minimum score of Band 6.5 with minimum of 6.0 in each component
- A $125 CAD non-refundable application fee payable to Great Plains College is required for an application to be considered.
- International students must successfully attain a valid study permit to study in Canada. As of March 1, 2018, applicants who provide a Guaranteed Investment Certificate (GIC) of $10,000 as proof of ability to self-support and provide proof of tuition payment for their first year may have their study permit application expedited.

  For more information on acquiring study permits visit: **www.canada ca/en/immigration-refugees-citizenship services/study-canada.html.**

COURSE LIST-Fourth Class Component

PART A1

- Applied Mathematics
- Elementary Mechanics
- Elementary Thermodynamics
- Sketching & Administration
- Codes & Standards
- Workplace Hazardous Materials
- Safety
- Plant Fire Protection PART A2
- Environment
- Materials & Welding
- Piping
- High Pressure Boiler Design
- Draft, Combustion & Pressure Boiler Fittings
- High Pressure Boiler Operations
- Feedwater Treatment

PART B1

- Prime Movers
- Pumps & Compressors
- Lubrication
- Electricity
- Controls & Instrumentation
- Heating Boilers
- Steam & Water Heating Systems

PART B2

- Heating Boiler & Heating System Controls
- Auxiliary Building Systems
- Vapour Compression Refrigeration
- Absorption Refrigeration
- Air Conditioning
- Air Conditioning Systems
- Boiler Maintenance
- Types of Plants

COURSE LIST-Third Class Component

PART A1

- Algebraic Operations, Logarithms & Problem Solving
- Trigonometry
- Mensuration
- Forces & Friction
- Work, Power, Energy: Linear & Angular Motion
- Strength of Materials; Bending of Beams
- Simple Machines; Pressure, Density, Flow
- Heat, State Change, Calorimetry
- Thermal Expansion & Heat Transfer
- Steam Properties & Calculations
- Gas Laws & Calculations
- Chemistry Fundamentals
- Metallurgy & Materials
- Corrosion Principles
- Industrial Drawings

PART A2

- Legislation & Codes for Power Engineers
- Code Calculations – ASME Section 1
- Fuels, Combustion, Flue Gas Analysis
- Piping Design, Connections, Support
- Steam Traps, Water Hammer, Insulation
- Valves & Actuators
- Electrical Theory & DC Machines
- AC Theory & Machines
- AC Systems, Switchgear, Safety
- Electrical Calculations
- Control Loops & Strategies
- Instrument & Control Devices
- Distributed & Logic Control
- Safety Management Systems
- Fire Protection Systems

PART B1

- Watertube Boilers Design
- Special Boiler Designs
- Boiler Construction (USCS)
- Boiler Heat Transfer Components
- High Pressure Boiler Fittings
- Burner Designs and Supply Systems
- Boiler Draft and Flue Gas Equipment
- Boiler Control Systems (USCS)
- Boiler Procedures
- Internal Water Treatment for Boilers
- Boiler Water Pre-treatment
- Pump Designs and Operations
- Pump Head Calculations
- Welding Procedures and Inspection
- Pressure Vessels

PART B2

- Steam Turbine Principles and Design
- Steam Turbine Auxiliaries and Operation
- Turbine Condenser Systems
- Gas Turbine Principles and Designs
- Gas Turbine Auxiliaries and Operation
- Internal Combustion Engines
- Cogeneration Systems & Operation
- Compressor Theory and Designs
- Compressor Auxiliaries and Operation
- Refrigeration Principles and Systems
- Refrigeration Auxiliaries and Operation
- Heat Exchangers and Cooling Towers
- Fired Heaters
- Wastewater Treatment
- Plant Maintenance and Administration

Please visit:
www.greatplainscollege.ca/programs-courses
for detailed course descriptions

FIND OUT MORE

To find out more about the International Power Engineering program, including requesting an International student application form, please visit our website at **www.greatplainscollege.ca/admissions-scholarships/international-students**.

or contact

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