Second Period Technical Training

- Industrial Mechanic (Millwright) -

(8 Weeks @ 30 Hours per Week = 240 hours)

Instructor(s):

Craig Cail – Chair / Instructor
780-715-3902
Craig.Cail@keyano.ca

Tom MacLellan – Instructor
780-792-5075
Tom.MacLellan@keyano.ca

Terry Seaward – Instructor
Terry.Seaward@keyano.ca
780-791-4909

Office Hours:
Monday through Friday: 8:00 am to 4:00 pm

Course Description:

In the Second Period Technical Training you will learn about:

1. Bearings, Gaskets, Seals and Lubrication.
2. Power Transmission.
3. Reciprocation Compressors.
4. Alignment, Cutting, Welding and Non-Destructive Testing.
5. Math and Print Reading.

Required Textbooks: (available at Keyano College Bookstore approximately 2 weeks prior to start date)

Second Period Millwright Apprenticeship ILMs w/supplemental texts
Alberta Learning
Edmonton: Author, 1998–, SKU 2001306

Industrial Mechanic (Millwright) Program Supplies (Required for all periods):

- 3-ring binders, dividers, and lined paper
- 6 or 12 inch ruler
- Pens, pencils, highlighters, erasers
- Calculator (with no programmable memory; Casio FX 260 is recommended)
- Coveralls or smock
- CSA approved safety boots
- Safety Goggles with side shields
- Work gloves

Learning Outcomes

Upon successful completion of Section One – *Bearings, Gaskets, Seals and Lubrication* - you will be able to

1. Demonstrate installation or gaskets, pipe and pipe fittings.
2. Demonstrate selection and installation of anti-friction bearings for specified applications.
3. Demonstrate application, installation and fitting of plain bearings.
4. Describe frequency of bearing failures.
5. Describe applications of bearing seals and pillow blocks.
6. Describe lubrication in the millwright industry.

Upon successful completion of Section Two – Power Transmission - you will be able to

1. Describe shafts, fits and accessories.
2. Describe types, application, replacement and maintenance of couplings.
3. Demonstrate types, applications, replacement and maintenance of clutches and brakes.
4. Demonstrate installation and maintenance procedures for belt power transmissions systems.
5. Demonstrate installation and maintenance procedures for chain power transmissions systems.
6. Describe the terminology and characteristics of gears.
7. Demonstrate removal, installation and maintenance of gears and gearboxes.
8. Describe installation and maintenance procedures for variable speed power transmission devices.

Upon successful completion of Section Three – *Reciprocating Compressors* - you will be able to

1. Describe the fundamentals of compressors.
2. Demonstrate reciprocating compressor valves design, inspection and repair.
3. Demonstrate reciprocating compressor cylinder components design, inspection and repair.
4. Demonstrate reciprocating compressor crosshead and distance piece components design, inspection and repair.
5. Demonstrate reciprocating compressor crankshaft and frame components design, inspection and repair.
6. Describe reciprocating compressor lubrication, cooling, filtration and monitoring system.

Upon successful completion of Section Four – *Alignment, Cutting, Welding and Non-Destructive Testing* - you will be able to

1. Demonstrate cross dial method of alignment.
2. Demonstrate the use of equipment and procedures when performing heating, cutting and brazing operations.
3. Demonstrate the procedures and equipment used in electric arc welding operations.
4. Describe non-destructive testing.

Upon successful completion of Section Five – *Math and Print Reading* - you will be able to

1. Solve problems involving measurement and conversion using geometric formulas.
2. Use formulas to solve trade-related problems involving the principles of the transmission of force and motion.
3. Apply ideal gas laws and coefficient of linear expansion principles to trade related problems.
4. Sketch and interpret auxiliary views, sub assemble and assemble drawings.
5. Read, interpret and sketch single line drawings of piping systems.
6. Describe basic joints and welds.

Schedule

A detailed daily class / shop schedule will be handed out on the first day of each intake.

Grading

Apprentices must successfully meet three criteria to pass technical training.

1. Minimum 65% Theory Component (cumulative weighted average)
2. Minimum 65% on each Practical Component
3. Minimum 50% on every section of study.

Bear, Gasket, Seal & Lube	20%
Power Transmission	23%
Reciprocating Compressors	25%
Align, Cut, Weld & ND Testing	15%
Math & Print Reading	17%
Total Theory Component	**100%**
Lab/Shop	100%
Total Practical Component	**100%**

Important Phone Numbers

- **Candace Trites, Administrative Assistant** **780-791-4881**
  Call Candace if you are going to be absent from class or have any general questions or concerns.

- **Craig Cail, Construction Trades Chair** **780-715-3902**
  Call Craig if you have any concerns with class work, instructor, or if you need any type of academic accommodations.

  Call your instructor if you need information about class work, schedules or if you need extra help to learn the material.

- **Suzanne Beveridge, Alberta AIT** **1-800-248-4823**
  Call Suzanne if you have questions about attendance, apprenticeship, or your employer.

- **Security** **780-791-4911**
  Call security if you feel threatened while on campus, to report a fire, if you need a door unlocked, or for parking issues.

- **Office of the Registrar**
  - **Registration Assistants** **780-791-4801**

  Call this office if you have questions about fees/tuition or class availability.

- **Student Life Calendar** https://calendar.keyano.ca/student/
  Refer to the Student Life calendar for events and important dates for students.

IMPORTANT NOTICE

Information Regarding Fees and Procedures

If the address listed on your fee assessment sheets is different from your current address, or if your address changes anytime during the duration of your program, please go to the Student Services Centre and fill out the "Change of Address" form as Keyano College requires a current address for you at all times.

Your Student ID cards are available for pick up at Office of the Registrar. Please have your Student ID # and photo identification available. Apprentices are required to pick up a new Student ID card every Academic Year.

For information on Awards/Bursaries, please contact the Student Services Center either in person or by phone at (780) 791-4894.

Keyano College is a paid parking facility. Parking passes can be purchased at the Cashier's Office when you go to pay your program fees.

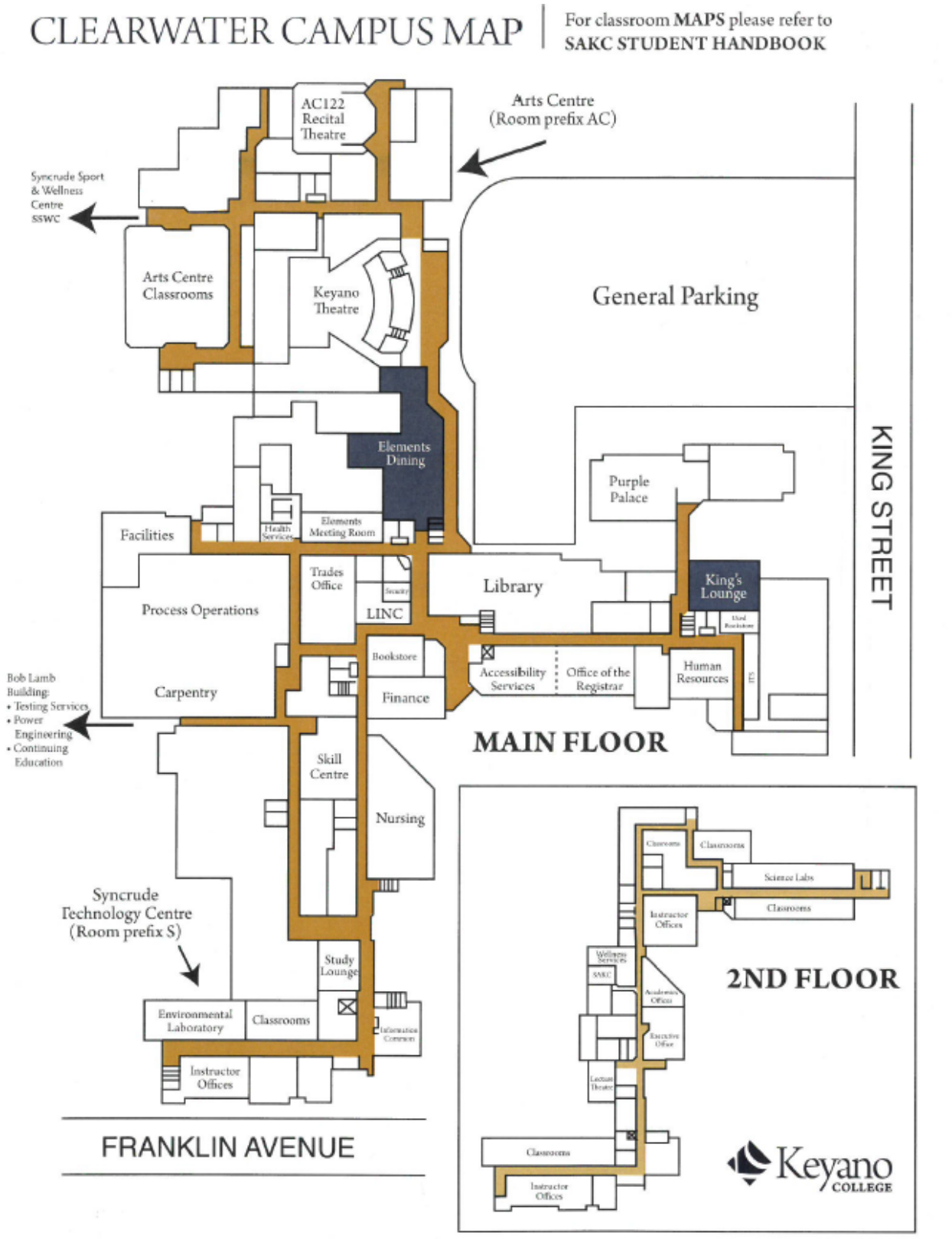
Parking Fees: (2019-2020)

2 Weeks	$12.87
1 Month	$24.77
2 Months	$39.63

Please ensure that when you are paying your program fees that you indicate to the Cashier whether or not you would like to purchase a parking pass. Unreserved, General Parking is available in lots A, B, E and F. Lots C and D are reserved staff parking. If you park in a reserved spot, you can be ticketed even if you have a hang tag or daily pass. Please see the campus map for locations of the parking lots.

Please Note:

- It is now your responsibility to submit your E.I. forms on your own time. (HRDC no longer comes to the college)
- You can submit your registration on-line http://www100.hrdcdrhc.gc.ca/ae-ei/dem-app/english/home2.html
- Or link from http://www.servicecanada.gov.ca


CLEARWATER CAMPUS MAP
For classroom MAPS please refer to SAKC STUDENT HANDBOOK
AC122 Recital Theatre
Arts Centre (Room prefix AC)
Syncrude Sport & Wellness Centre SSWC
Arts Centre Classrooms
Keyano Theatre
General Parking
KING STREET
Elements Dining
Purple Palace
Facilities
Health Services
Elements Meeting Room
Trades Office
Library
King's Lounge
Process Operations
LINC
Bookstore
Accessibility Services
Office of the Registrar
Human Resources
Carpentry
Finance
Bob Lamb Building:
• Testing Services
• Power Engineering
• Continuing Education
MAIN FLOOR
Skill Centre
Nursing
Syncrude Technology Centre (Room prefix S)
Study Lounge
Environmental Laboratory
Classrooms
Instructor Offices
FRANKLIN AVENUE
Science Labs
2ND FLOOR
Keyano COLLEGE