



Fourth 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 4:30 pm

Course Description:

In the Fourth Period Technical Training you will learn about:

1. Stationary Engines.
2. Turbines and Governors.
3. Machinery Monitoring, Balance and Alignment.
4. Pumps, Mechanical Seals and Packing.
5. Material Handling Systems, Workplace Coaching Skills & Industry Network.

Required Textbooks: ILM 4th Period (available at Keyano College Bookstore approximately 2 weeks prior to start date)

Fourth Period Millwright Apprenticeship ILMs w/supplemental texts

Alberta Learning

Edmonton: Author, 1998–, SKU 2001395

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 – Stationary Engines - you will be able to

1. Describe fundamentals of industrial stationary engines.
2. Describe components, operation and maintenance of frame, block and cylinders.
3. Describe components, operation and maintenance of crankshafts, pistons and assemblies.
4. Describe components, operation and maintenance of cylinder head and valve train assemblies.
5. Describe components, operation and maintenance of fuel, induction, ignition, and starting systems.
6. Describe components, operation and maintenance of exhaust, cooling, lubrication and ventilation systems.
7. Demonstrate installation and start-up procedure.
8. Describe troubleshooting and maintenance procedures.

Upon successful completion of Section Two – Turbines and Governors - you will be able to

1. Demonstrate principles, installation, start-up, maintenance and repair procedures for steam turbines.
2. Describe principles, installation, start-up, maintenance and repair procedures for gas turbines.
3. Demonstrate operation, installation and maintenance of governors.

Upon successful completion of Section Three – Machinery Monitoring, Balance and Alignment - you will be able to

1. Describe machinery condition monitoring and analysis.
2. Describe machine balancing.
3. Demonstrate alignment procedures for thermal growth and multi-machine alignment.
4. Describe maintenance planning procedure.
5. Describe troubleshooting processes.

Upon successful completion of Section Four – Pumps, Mechanical Seals and Packing - you will be able to

1. Describe the selections for dynamic pumps.
2. Demonstrate operation, repair and maintenance for dynamic pumps.
3. Demonstrate operation, repair and maintenance for positive displacement pumps.
4. Demonstrate principles, inspection and replacement procedure for mechanical seals.
5. Demonstrate principles, inspection and replacement procedures for compression packing.
6. Describe operation, maintenance and repair of fluid control valves.

Upon successful completion of Section Five – Material Handling Systems, Workplace Coaching Skills & Industry Network - you will be able to

1. Demonstrate application, operation and maintenance of belt conveying systems.
2. Describe application, operation and maintenance of chain, bucket and screw conveying systems.
3. Describe application, operation and maintenance of roller and pneumatic conveying systems.
4. Display coaching skills.
5. Describe the role of the Alberta Apprenticeship and Industry Training Board and the network of industry committees that represent the trades and occupations in Alberta.
6. Use Red Seal products to challenge the Interprovincial examination.

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.

Stationary Engines	20%
Turbines and Governors	20%
Machine Monitor, Bal & Align	20%
Pumps, Mech Seals & Packing	26%
Mat Hand Sys & Advis Network	14%
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 in the 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>

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CLEARWATER CAMPUS MAP

For classroom MAPS please refer to
SAKC STUDENT HANDBOOK

