



Third Period Technical Training

- Heavy Equipment Technician-

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

Third Period Technical Training - Heavy Equipment Technician

Instructor(s):

Craig Cail, Chair – Construction Trades & Heavy Industrial

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Allan Fenerty – HET Instructor

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Tony Gauthier – HET Instructor

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Dorsey Butz – HET Instructor

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Alan Dowling – HET Instructor

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Kevin Wills – HET Instructor

780-799-8618

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Office Hours:

Monday through Friday: 8:00 am – 4:00 pm

Suncor Energy Industrial Campus (SEIC)

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

Third Period ILM Package and 3rd Year Keyano College handout package

Heavy Equipment Technician Program Supplies

(Required for all periods):

- 2 inch 3-ring binders and lined paper
- 6 or 12 inch ruler
- Pens, writing pencils, coloured pencils, highlighters, erasers
- Calculator (with no programmable memory)
- Coveralls
- CSA approved safety boots
- Safety glasses
- Although classes are scheduled in person, we ask that all students are prepared with the technology required for virtual classes (online) should it become necessary; Computer/laptop, microphone, camera and internet access.

Course Description:

In the Third Period Technical Training you will learn about:

1. Hydraulics II
2. Steering and Suspension Systems and Accessories (Specific to Off-Road) and Apprenticeship
3. Power Train (Specific to Off-Road)

Learning Outcomes

Upon successful completion of Section One – *Hydraulics II* - you will be able to

1. Explain principles of hydraulics.
2. Identify common hydraulic pumps.
3. Diagnose and repair common hydraulic pumps.
4. Identify hydraulic motors and cylinders.
5. Service hydraulic cylinders and motors.
6. Service hydraulic pressure, flow and directional control valves.
7. Analyze common mobile equipment hydraulic systems.
8. Diagnose common mobile equipment hydraulic systems.
9. Analyse basic electrical and electronically controlled hydraulic systems.

Upon successful completion of Section Two – *Steering and Suspension Systems (Specific to Off Road)* - you will be able to

1. Diagnose and service off-road equipment steering systems.
2. Explain off-road suspension system diagnostic and service procedures
3. Service and maintain accessories and attachments used with off-road equipment.
4. Explain the operation of typical off-road equipment electrical and warning circuits.
5. Diagnose and repair off-road equipment electrical circuits.
6. Display coaching skills.
7. 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.
8. Use Red Seal Product to challenge an Interprovincial examination.

Upon successful completion of Section Three – *Power Train (Specific to Off Road)* - you will be able to

1. Explain basic gearing principles.
2. Diagnose and repair common off road equipment torque converters.
3. Explain the operation of powershift and automatic transmissions mechanical components.
4. Explain the operation of powershift and automatic transmission shift control mechanisms.
5. Explain the operating principles for off-road equipment hydraulic retarders.
6. Diagnose and service powershift and automatic transmissions.
7. Explain tracked equipment steering system diagnostic and service procedures.
8. Explain diagnostic and service procedures for tracked equipment undercarriage and related components.
9. Explain diagnostic and service procedures for off-road equipment final drive systems.
10. Repair drive axle and differential assemblies.
11. Service and diagnose common clutch types.

Schedule

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

Grades

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.

Hydraulics II	45.8%
Steering and Suspension Systems & Accessories (Specific to Off Road)	15%
Power Train (Specific to Off Road)	39.2%
Total Theory Component	100%
Lab/Shop	100%
Total Practical Component	100%

E-Learning

Technology and internet will impact your online learning experience. It's important that you are able to watch an online video and other course materials, take online quizzes, and participant in a live class with your instructor and other students.

Keyano College operates in a Windows based environment and having the correct tools for online learning is important. Here's a list of recommended system requirements:

Internet Speed

Minimum Internet speeds of 5 Mbps.

Recommended Internet speeds of 25 Mbps (especially if you are sharing your internet at home). Check your internet speed with Fast.com.

System requirements:

Microsoft Windows	Apple
<p>Minimum Requirements:</p> <p>A Windows 10 computer/laptop</p> <ul style="list-style-type: none"> · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). Microsoft Office software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software 	<p>Minimum Requirements:</p> <p>A Macintosh (V10.14 and above) computer/laptop</p> <ul style="list-style-type: none"> · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). Microsoft Office software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software.
<p>Recommended Requirements</p> <ul style="list-style-type: none"> · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free. 	<p>Recommended Requirements</p> <ul style="list-style-type: none"> · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free.
<p>Chromebooks are not recommended as they are not compatible with testing lockdown browsers.</p> <p>A Microsoft Surface or iPad or iPad Pro may be possible alternatives in some program areas.</p>	

Specific department requirements:

Business and OA programs require Windows 10.

Other programs may utilize Windows based tools as well.

Computer Software

Students will be able to get access to Microsoft Office 365 for Free using Keyano Credentials by [clicking here](#).

Recording of lectures and Intellectual Property

Students may only record a lecture if explicit permission is provided by the instructor or by Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not publish any of the lectures or lecture materials, this includes any recordings, slides, instructor notes, etc. on any platform. Thus no student is allowed to publish or sell instructor notes without formal written permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property.

ITS Helpdesk

If you are having issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.

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 & Heavy Industrial Chair** **780-715-3902**
Call Craig if you have any concerns with class work, instructors, or if you require 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.

- **Mark Power, Alberta AIT** **780-743-7181**
Call Mark if you have questions about attendance, apprenticeship, or your employer.

- **Security** **780-791-7911**
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 Bookstore. Current rates can be found at: <https://www.keyano.ca/en/about-us/parking.aspx>

When parking, please be mindful of designated areas ("Reserved", "Metered", etc.) 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>

Campus Map

Suncor Energy Industrial Campus

