Heavy Equipment and Truck and Transport Technician - Certificate

PLAR Candidate Guide

Prior Learning Assessment and Recognition (PLAR)

Prior learning credit options at Saskatchewan Polytechnic

See Get Credit for What you Know for important information about all options to get credit for prior learning at Sask Polytech, including PLAR, transfer credit, Canadian Armed Forces credit, and equivalency credit.

How to navigate this document

This document contains links to other document sections or webpages. To return to where you were from another section in this document, press the *ALT* key and *left arrow* key at the same time. To return to this webpage from another webpage, close the other webpage or click back on the browser tab for this document.

Contents of this guide

This guide contains the following specific PLAR information and tools for this program

A. PLAR fees

Fees for PLAR challenges are set to cover our costs for consultation, assessment, and related administrative tasks. PLAR fees are non-refundable and non-transferrable.

The PLAR fees policy is subject to change for each new academic year. Please see the **Cost** section on the PLAR webpage for current fee information.

B. PLAR eligibility and options

To be eligible for PLAR for courses in this program, you must first apply for admission and be accepted into the program. You must also consult with the PLAR contact person and be approved for PLAR assessment.

Course prerequisites and corequisites

Some courses have one or more other courses that must be completed first (prerequisite) or at the same time (corequisite). See course outlines in this guide to identify any pre- or co-requisites for each course. Discuss with your PLAR contact person how to deal with courses with corequisites.

Block assessment

Some programs may assess a cluster of courses together in one block, which may save you time and effort. Ask the PLAR contact person whether there are any block assessment options in this program.

C. Dates when PLAR assessment is available

PLAR assessment for this program is available from Sept 1 to June 15 in each academic year.

All PLAR assessments must be completed by June 15 of each academic year.

D. Special directions for this program

1. **Review** the PLAR process and FAQs and the information in this guide.
2. **Self-rate** your learning for each course using the Course Outlines in this guide.
3. **Consult** with the PLAR contact person for PLAR approval. Be prepared to provide your resume, course self-ratings (see section F), and a partially completed PLAR application. If you are approved for PLAR, the contact person will sign your PLAR application and explain next steps.
4. Apply for admission to the program. See directions for applying.
5. **Register** for PLAR at Registration/Enrolment Services once you have signed approval on your PLAR Application Form. The PLAR fee will be added to your student account.
6. **Finalize** an assessment plan with your assigned assessor**.**
7. **Complete** assessment before your PLAR registration expires.

E. PLAR contact person

Contact one of the Program Heads below to arrange a consultation **after** you have read this guide and general PLAR information **and** rated yourself for each course (see next section). Consultation may be by phone, online, or in person. Be prepared to provide your resume, course self-ratings, and a partially completed PLAR application. If agreement is reached to go ahead with PLAR, the contact person will sign approval on your PLAR application and explain the next steps. Admission to the program is required before you can register for PLAR.

Barkley Twidale, Program Head
School of Transportation
Saskatchewan Polytechnic, Saskatoon Campus
Phone: 306 – 659 – 5351
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F. Self-rating course outlines

Clicking on a course code below opens a page where you can rate yourself on the knowledge and skills assessed for PLAR credit. For Arts & Sciences courses, clicking on the course code opens another PLAR guide. The PLAR contact person for this program will refer you to another person to discuss PLAR for courses delivered by Arts & Sciences or another program/department.

COURSE CODE	COURSE NAME	Delivered by another department/program
BRAK 113	Brake Systems Air Theory	
BRAK 114	Brake Systems Air Shop	
BRAK 115	Brake Systems Hydraulic Theory	
BRAK 116	Brake Systems Hydraulic Shop	
DRTR 106	Drivetrain Introduction Theory	
DRTR 107	Drivetrain Introduction Shop	
DRTR 108	Drivetrain Intermediate Theory	
DRTR 109	Drivetrain Intermediate Shop	
ELCT 102	Electrical Basics Theory	
ELCT 103	Electrical Basics Shop	
ELCT 104	Electrical Starting and charging Systems Theory	
ELCT 105	Electrical Starting and Charging Systems Shop	

COURSE CODE	COURSE NAME	Delivered by another department/program
ENGN 130	Diesel Engines Theory	
ENGN 131	Diesel Engines Shop	
HVAC 101	Environmental Control Systems	
HYDR 110	Hydraulic Basics Theory	
HYDR 111	Hydraulic Basics Shop	
HYDR 112	Hydraulics Advanced Theory	
HYDR 113	Hydraulics Advanced Shop	
JOBS 125	Essential Job Skills	Arts & Sciences
MAIN 104	Structural Components Theory	
MAIN 105	Structural Components Shop	
MAIN 106	Tracks and Undercarriage Theory	
MAIN 107	Tracks and Undercarriage Shop	
MATH 169	Trade Mathematics	Arts & Sciences
STER 102	Steering Systems Theory	
STER 103	Steering Systems Shop	
STER 104	Steering and Directional Control Systems Theory	
STER 105	Steering and Directional Control Systems Shop	
TOOL 154	Basic Tools Theory	
TOOL 155	Basic Tools Shop	
TRLR 100	Truck and Trailer Systems Theory	
TRLR 101	Truck and Trailer Systems Shop	
WORK 149	Work Experience	

BRAK 113 - Brake Systems Air Theory

You will study the design, operation, and service recommendations for air operated systems. Air operated anti-lock braking systems will be covered. Traction and stability control systems will also be covered.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe air brake system operation.			
2. Describe antilock air brake systems.			
3. Describe air traction and stability control systems.			

BRAK 114 - Brake Systems Air Shop

You will service, repair and test air activated foundation brake systems. Park brake systems of various designs will be evaluated. Anti-lock, traction, and stability control systems will be analyzed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate air brake systems operation.			
2. Evaluate antilock braking systems.			
3. Evaluate a traction and stability control system.			
4. Conduct final adjustments and performance tests.			
5. Repair system faults.			

BRAK 115 - Brake Systems Hydraulic Theory

You will study the design, operation, and service recommendations for hydraulic brake systems. Hydraulically operated anti-lock braking systems will be covered. Traction and stability control systems will be discussed. You will also learn about electric braking systems.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe hydraulic brake system operation.			
2. Describe hydraulic antilock brake systems.			
3. Describe hydraulic traction and stability control systems.			
4. Describe electric brake system operation.			

BRAK 116 - Brake Systems Hydraulic Shop

You will service, repair and test hydraulically activated foundation brake systems. Park brake systems of various designs will be evaluated. Air-lock, traction, and stability control systems will be analyzed. Electric brake systems will be serviced and repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate hydraulic brake system operation.			
2. Evaluate a hydraulic antilock brake system.			
3. Evaluate an electric braking system.			
4. Conduct final adjustments and performance tests.			
5. Repair faults.			

DRTR 106 - Drivetrain Introduction Theory

You will develop skills in diagnosing and repairing brake systems.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Repair wheels and tires			
2. Perform brake line repair			
3. Perform the master cylinder evaluation and replacement.			
4. Perform the wheel cylinder and calliper evaluation and replacement.			
5. Perform the evaluation and replacement of brake valves and switches.			
6. Perform flushing and bleeding procedures of brake and ABS systems.			
7. Perform the evaluation and repair of brake drums and brake rotors.			
8. Service wheel bearings and seals.			
9. Perform park brake systems repair.			
10. Perform power-assist brake systems repair.			
11. Replace brake shoes and pads.			
12. Diagnose brake system.			

DRTR 107 - Drivetrain Introduction Shop

You will remove, inspect, and replace seals and bearings. Clutches of various types will be removed, evaluated, and reinstalled. Adjustment procedures for various clutches will be performed. Manual transmission and differentials will be overhauled.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform the removal and replacement of various seals and bearings.			
2. Evaluate various clutch types.			
3. Evaluate manual transmission operation.			
4. Repair faults.			

DRTR 108 - Drivetrain Intermediate Theory

You will study various types of gear sets, ratios, as well as procedures for correction gear contact patterns, preloading and adjusting bearings in differential assemblies. Inspection and set up procedures for planetary final drive systems will be covered. Procedures for determining the serviceability of universal joints and drive line angles will be covered.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Discuss differential operation.			
2. Discuss planetary and final drives.			
3. Discuss driveline operation.			

DRTR 109 - Drivetrain Intermediate Shop

You will service and overhaul differentials. Various types of planetary drive systems will be evaluated. Driveline components and operational angles will be evaluated.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate differential operation.			
2. Evaluate planetary and final drives.			
3. Evaluate driveline systems.			
4. Repair faults.			

ELCT 102 - Electrical Basics Theory

You will study the fundamentals of electricity and magnetism, Ohm's law, and the use of analog and digital meters. Various faults and their effects on circuit operation will be discussed. You will study battery construction, operation, as well as testing and servicing procedures.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Apply scientific principles to explain electrical theory and magnetism.			
2. Identify electrical circuit types and faults utilizing test equipment.			
3. Explain the function and operation of a lead acid battery.			

ELCT 103 - Electrical Basics Shop

You will practice diagnosing faults in electrical circuits using digital meters. Wet cell batteries will be tested and serviced as required.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Measure electrical values and check circuit operation.			
2. Evaluate a lead acid battery.			
3. Repair faults.			

ELCT 104 - Electrical Starting and Charging Systems Theory

You will study the fundamentals of a cranking system as well as the control circuits and components. Charging system fundamentals as well as control systems will also be discussed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain the operation of a cranking system and related components.			
2. Explain the operation of an alternating current (AC) charging system and related components.			

ELCT 105 - Electrical Starting and Charging Systems Shop

You will disassemble starters and alternators and test their internal components for serviceability. Reassembled alternators and starters will be tested to verify operation. Starting and charging systems will be diagnosed utilizing test equipment and repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate cranking and charging systems.			
2. Repair faults.			

ENGN 130 - Diesel Engines Theory

You will study the theory of operation and learn how to service and maintain the diesel engine and its support systems. This includes cooling, lubrication, mechanical and electronic fuel injection (low pressure side), emission, and air induction and exhaust systems. You will study testing, diagnosing and repair and rebuilding procedures. You will also learn how to remove and install engines.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain engine lubrication systems.			
2. Explain cooling systems.			
3. Explain air intake systems.			
4. Explain exhaust systems.			
5. Explain diesel fuel systems (low pressure side).			
6. Explain engine operation and fundamentals.			
7. Explain diesel engine teardown and overhaul techniques.			

ENGN 131 - Diesel Engines Shop

You will study the theory of operation and learn how to service and maintain the diesel engine and its support systems. This includes cooling, lubrication, mechanical and electronic fuel injection (low pressure side), emission, and air induction and exhaust systems. You will study testing, diagnosing and repair and rebuilding procedures. You will also learn how to remove and install engines.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform engine and support system service.			
2. Interpret engine and support system conditions.			
3. Perform engine and support system repair and overhaul techniques.			

HVAC 101 - Environmental Control Systems

You will become familiar with the Heating, Refrigeration and Air Conditioning Institute's program on environmental awareness regarding Ozone Depleting Substances.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Complete the Heating, Refrigeration and Air Conditioning Institute's course on ozone depleting substances.			

HYDR 110 - Hydraulic Basics Theory

You will study the basic hydraulic principles of flow and pressure, system and component operation and maintenance procedures. You will also learn to interpret symbolic diagrams to determine system operation.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain the fundamentals of a basic hydraulic system and related components.			
2. Interpret hydraulic symbol diagrams.			
3. Describe hydraulic system maintenance and testing procedures.			
4. Describe open and closed center hydraulic systems.			

HYDR 111 - Hydraulic Basics Shop

You will disassemble, inspect, measure, assemble, adjust, and test hydraulic pumps, valves, and motors on a test stand. You will disassemble and repair hydraulic cylinders from live machines or shop models. You will work with common types of hydraulic fittings and adaptors, and practice installing hose ends, flaring, and bending tubing.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Service hydraulic system and various components.			
2. Test hydraulic systems using correct tools and procedures.			

HYDR 112 - Hydraulics Advanced Theory

You will review the basics of a hydraulic system. Concepts such as open and closed center hydraulic systems will be discussed. Power-beyond, open, and closed loop hydrostatics as well as load sensing systems will also be covered. Advanced diagnostic strategies will also be discussed.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe the operation of the different types of flow control valves.			
2. Describe a power-beyond hydraulic system.			
3. Describe open and closed loop hydrostatic systems.			
4. Describe the operation of a load sensing hydraulic system.			

HYDR 113 - Hydraulics Advanced Shop

You will evaluate various components in a hydraulic circuit to determine function as well as serviceability. You will also perform system diagnosis on open center, closed center, and power beyond hydraulic systems. Open and closed loop hydrostatics as well as a load sending hydraulic system will be evaluated. You will perform evaluations on live machines with hydraulic analyzers and perform adjustments or repair.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate various types of hydraulic systems and flow control valves.			
2. Evaluate a power-beyond system.			
3. Evaluate open and closed loop hydrostatic systems.			
4. Evaluate a load sensing hydraulic system.			
5. Repair faults.			

JOBS 125 - Essential Job Skills

You will develop essential job skills by preparing job search documents and practicing effective interpersonal communication skills for the workplace.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Discuss effective workplace interpersonal communications.			
2. Prepare job search documents.			

MAIN 104 - Structural Components Theory

You will cover preventative maintenance programs on both highway and off road equipment. Hoisting and rigging techniques will be discussed. On highway power unit frame and suspension systems as well as docking and coupling systems will be covered. ROPS and FOPS safety systems will be covered as they pertain to heavy equipment.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe preventative maintenance programs for both highway tractors and heavy equipment.			
2. Identify hoisting and rigging techniques.			
3. Describe tractor frame construction and suspension systems.			
4. Describe truck and trailer coupling and docking systems.			
5. Describe the purpose of roll over protection system (ROPS) and operator safety systems.			

MAIN 105 - Structural Components Shop

You will perform preventive maintenance procedures on both off road and on highway equipment. Hoisting and rigging procedures will be implemented. Various hitching and docking systems will be analyzed. Highway tractor frames and suspensions will be inspected. Operator protection systems on heavy equipment will be inspected and repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform preventative maintenance checks for both highway tractors and heavy equipment.			
2. Perform hoisting and rigging techniques.			
3. Repair various hitching and docking systems.			
4. Inspect frame and suspension systems.			
5. Evaluate roll over protection system (ROPS) and operator safety systems.			
6. Repair defects.			

MAIN 106 - Tracks and Undercarriage Theory

You will study various types of final drive systems used on construction equipment. Tracked equipment inspection and maintenance procedures will be discussed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Identify hoisting and rigging techniques.			
2. Describe undercarriage operation and troubleshooting.			
3. Identify undercarriage components and crawler tractor final drive systems.			

MAIN 107 - Tracks and Undercarriage Shop

You will perform inspections on various final drive systems. Undercarriage components will be evaluated and repairs performed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform hoisting and rigging techniques.			
2. Evaluate undercarriage and final drive components.			
3. Repair faults.			

MATH 169 - Trade Mathematics

You will learn mathematical concepts commonly used in your trade. After reviewing basic arithmetic and basic equations, you will solve various algebra problems as applied to your trade. You will perform Imperial and Metric conversions, and calculate the perimeter, area, and volume of many common shapes, as well as use Pythagorean theorem.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Use arithmetic to solve trade-related problems.			
2. Use measurement systems.			
3. Solve trade-related equations and formulas.			
4. Solve geometric problems.			

STER 102 - Steering Systems Theory

You will focus on basic steering geometry and wheel alignment angles, wheels and tires and tire balancing.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain basic wheel and frame alignment angles.			
2. Explain manual and integral steering system operation.			
3. Describe mounting procedures for tires, rims and hubs.			

STER 103 - Steering Systems Shop

You will service steering system components and perform a wheel alignment. You will also remove and replace a wheel assembly. Also covered will be hub removal and installation using industry approved procedures. Tire removal, replacement and balancing will also be covered.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform a basic wheel alignment.			
2. Evaluate manual and integral power steering systems.			
3. Performs mounting procedures for tires, rims and hubs.			
4. Repair system faults.			

STER 104 - Steering and Directional Control Systems Theory

You will study steering systems that are specific to off road equipment. Orbital, pilot control, differential and hydrostatic steering systems will be discussed. You will also discuss various types of auxiliary steering systems used on heavy trucks.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain differential directional control in a crawler tractor.			
2. Explain hydrostatic directional control in a crawler tractor.			
3. Discuss pilot control and orbital steering systems.			
4. Explain the operating principles of tandem steering systems.			
5. Explain the operating principles of an auxiliary steering systems.			

STER 105 - Steering and Directional Control Systems Shop

You will perform inspections and repairs on various types of off road steering systems. You will also evaluate various types of auxiliary steering systems such as tandem and trailing axle steering. Pilot control and orbital steering systems will be analyzed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate differential directional control in a crawler tractor.			
2. Evaluate hydrostatic directional control in a crawler tractor.			
3. Evaluate pilot control and orbital steering systems.			
4. Evaluate a tandem steering system.			
5. Evaluate auxiliary steering systems.			
6. Repair faults.			

TOOL 154 - Basic Tools Theory

You will learn to identify, use and maintain hand tools and shop equipment. You will learn to read and use various measuring instruments and the proper method of sawing, filing, drilling, thread cutting, tool sharpening, and layout procedures. You will also learn to identify and use threaded fasteners and fittings, chemical fasteners and sealants. The course content includes safety rules, basic firefighting techniques and Occupational Health and Safety (OHS) and Workplace Hazardous Materials Information Systems (WHMIS) regulations.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe safety rules and regulations.			
2. Describe the purpose and care of shop and hand tools.			
3. Describe various types of fasteners, adhesives and sealing devices.			

TOOL 155 - Basic Tools Shop

You will use and maintain hand tools and shop equipment. You will use various measuring instruments and perform sawing, filing, drilling, thread cutting, tool sharpening and layout procedures. You will use threaded fasteners and fittings, chemical fasteners, and sealants. You will demonstrate safety rules and Occupational Health and Safety (OHS) and Workplace Hazardous Materials Information Systems (WHMIS) regulations.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Demonstrate safety.			
2. Explain legislative regulations.			
3. Demonstrate use and care of hand tools and shop equipment.			

TRLR 100 - Truck and Trailer Systems Theory

You will discuss various trailer frame and suspension designs. Saskatchewan Government Insurance inspections procedures will also be discussed.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe trailer frame and suspension systems.			
2. Describe SGI safety inspection procedures for truck and trailers.			

TRLR 101 - Truck and Trailer Systems Shop

You will evaluate various trailer frame and suspension designs. Saskatchewan Government Insurance inspection procedures will be performed and defects repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate trailer frame and suspension systems.			
2. Perform SGI safety inspection.			
3. Repair defects.			

TRLR 102 - HVAC and Auxiliary Power Systems Theory

You will discuss various auxiliary heaters and power generation systems. You will also study trailer heating, ventilation and air conditioning systems.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe the operation of cab and engine heaters and auxiliary power generation units.			
2. Describe operational fundamentals of trailer heat, ventilation and air conditioning systems.			

TRLR 103 - HVAC and Auxiliary Power Systems Shop

You will analyze and repair auxiliary heating and power generation systems. Trailer heating, ventilation and air conditioning systems will also be evaluated.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate the engine and cab heating and auxiliary power generation units.			
2. Evaluate trailer heating, ventilation, and air condition systems.			
3. Repair defects.			

WORK 149 - Work Experience

You will participate in a work placement to further your understanding of workplace employer needs. You will become familiar with the industry and gain practical experience in the workplace.

Credit unit(s): 0.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Demonstrate employability skills in the workplace.			
2. Apply technical/practical skills.			