Building System Technician Certificate

PLAR Candidate Guide

Prior Learning Assessment and Recognition (PLAR)

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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.

- Individuals who hold a 5th Class Power Engineering license or higher may be eligible to PLAR the following courses:
  - ENGP 107 Power Lab 1,
  - HEAT 100 Heating Systems,
  - MAIN 109 Building Systems Maintenance, and
  - ENGP 106 Power Lab 2
- Those who hold a Refrigeration Engineering license may be eligible to PLAR the following:
  - RFRG 104 Refrigeration and Air Conditioning Systems

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. **Apply** for admission to the program. See directions for applying.
2. **Review** the PLAR process and FAQs and the information in this guide.
3. **Self-rate** your learning for each course using the Course Outlines in this guide.
4. **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.
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.

Dennis Callaghan, Program Head
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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
Semester 1		
BLDG 113	Building Applications 1	
CODE 103	Legislation Codes	
COMP 172	Introduction to Microsoft Word and Excel	Arts & Sciences
ENGP 107	Power Lab 1	
HEAT 100	Heating Systems	
MAIN 109	Building Systems Maintenance	
MATH 104	Applied Mathematics	Arts & Sciences
TCOM 105	Communications for Technicians	Arts & Sciences
THER 182	Thermodynamics and Mechanics	
Semester 2		
BLDG 114	Building Applications 2	
CLTR 200	Culture and Diversity	Arts & Sciences

COURSE CODE	COURSE NAME	Delivered by another department/program
ENGP 106	Power Lab 2	
PROJ 287	Project Management	
RFRG 104	Refrigeration and Air Conditioning Systems	
SFTY 121	Health and Safety Awareness	
SEM 101	Technology Seminars	
WSTE 100	Consumption, Waste and Energy Management	
Semester 3		
BLDG 117	Building Automation	
ENRG 100	Renewable Energy	
PROJ 109	Capstone Project	
WORK 108	Work Experience	

BLDG 113 - Building Applications 1

You will perform tasks related to electricity, lighting, plumbing, interior and exterior systems.

Credit unit(s):	4.0
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 basic electrical systems.			
2. Perform basic electrical system tasks.			
3. Describe basic plumbing.			
4. Perform basic plumbing tasks.			
5. Describe construction of interiors.			
6. Perform interior construction tasks.			
7. Describe construction of exteriors.			
8. Perform exterior construction tasks.			

CODE 103 - Legislation Codes

You will study foundational knowledge and practical skills related to codes, regulations, and workplace requirements in building systems and operations. You will interpret and apply building codes, pressure vessel acts, and provincial Occupational Health and Safety legislation.

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. Recognize codes and their applications.			
2. Apply building codes.			
3. Apply pressure vessel acts and regulations.			
4. Discuss methods of extinguishing different fire types.			
5. Discuss the implications of working in a confined space.			
6. Discuss the provincial Occupational Health and Safety legislation.			
7. Describe procedures for the storage and handling of hazardous materials.			
8. Interpret engineering drawings.			

COMP 172 - Introduction to Microsoft Word and Excel

(See the Arts & Sciences PLAR Guide for instructions on how to PLAR this course)

You will learn the purpose and uses of a word processor and electronic spreadsheet. You will develop the basic skills of creating, editing and formatting documents and spreadsheets.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): COAP 120, COAP 172, COMP 120

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. Create Word documents.			
2. Edit Word documents.			
3. Format Word documents.			
4. Create a spreadsheet.			
5. Use spreadsheet features.			

ENGP 107 - Power Lab 1

You will practice operational procedures when working around boilers. You will learn about components and systems associated with boilers. You will use proper techniques to start up and shut down a boiler system.

Credit unit(s):	4.0
Prerequisites:	none
Corequisites:	MAIN 109
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 power lab components and safety regulations.			
2. Perform maintenance on air compressors systems.			
3. Discuss principles of lubrication.			
4. Operate a plant air distribution system.			
5. Operate raw and treated water systems.			
6. Operate boiler feed water pump.			
7. Perform start up and shut down procedures on a boiler.			
8. Examine normal operation conditions of a boiler system.			

HEAT 100 - Heating Systems

You will study the components of hydronic, steam heating, electric, infrared, and warm air heating. You will operate hydronic, electric, infrared, and warm air heating systems. Your studies will involve ventilation and humidification. You will perform heating system maintenance.

Credit unit(s):	3.0
Prerequisites:	none
Corequisites:	ENGP 107
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 steam heating equipment and systems.			
2. Describe hot water heating equipment and systems.			
3. Describe warm air heating system equipment and components.			
4. Describe humidification, ventilation and air filters.			
5. Discuss infrared and electrical heating.			
6. Describe electric controls for heating systems.			
7. Describe thermal heaters and systems.			
8. Operate a hydronic boiler system.			

MAIN 109 - Building Systems Maintenance

You will work with basic tools and fasteners while maintaining a safe workplace. Your studies will include discussing boiler fittings, piping, and valves, as well as welding terms and inspections. You will discuss plant layouts and diagrams. You will practice skills used in plant maintenance.

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. Practice workplace safety.			
2. Use maintenance tools and basic fasteners.			
3. Describe basic boiler fittings.			
4. Discuss welding terms and inspection.			
5. Discuss piping and valves.			
6. Describe plant diagrams.			
7. Perform maintenance of pumps.			
8. Perform boiler maintenance tasks.			

MATH 104 - Applied Mathematics

(See the Arts & Sciences PLAR Guide for instructions on how to PLAR this course)

You will solve practical problems using arithmetic, linear equations, geometry and right triangle trigonometry. You will manipulate and use some formulas related to your trade.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): MATH 182, MATH 193

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. Solve practical problems involving arithmetic.			
2. Perform calculations with the Imperial and metric systems of measurement.			
3. Solve practical problems involving linear equations.			
4. Solve practical problems involving trade formulas.			
5. Solve practical problems involving geometry.			
6. Solve practical problems involving trigonometry.			

TCOM 105 - Communications for Technicians
(See the [Arts & Sciences]() PLAR Guide for instructions on how to PLAR this course)

You will learn and practice written, oral and interpersonal communication for the workplace. You will apply these skills as team members and in short presentations. You will also develop effective job search strategies.

Credit unit(s):	2.0
Prerequisites:	none
Corequisites:	none
Equivalent course(s):	COMM 127, MGMT 125, TCOM 102

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 job-related communication strategies.			
2. Produce job-related written communication.			
3. Implement teamwork skills.			
4. Implement presentation skills.			
5. Use job search skills.			

THER 182 - Thermodynamics and Mechanics

You will receive an introduction to the field of thermodynamics. You will learn the quantities, units and principles involved in elementary thermodynamics. You will learn the concepts of basic mechanics.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): PHYS 224

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 basic principles of thermodynamics.			
2. Explain the thermodynamics of steam.			
3. Perform basic thermodynamic calculations.			
4. Define the terms used in basic mechanics.			
5. Discuss levers, pulleys and inclined planes.			
6. Identify applications of simple machines.			

BLDG 114 - Building Applications 2

You will safely troubleshoot basic electrical and plumbing systems. You will perform interior and exterior maintenance of buildings.

Credit unit(s): 4.0
Prerequisites: BLDG 113
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 troubleshooting techniques for electrical systems.			
2. Troubleshoot basic electrical systems.			
3. Describe troubleshooting techniques for plumbing systems.			
4. Troubleshoot plumbing systems.			
5. Describe maintenance of interiors.			
6. Maintain interiors of buildings.			
7. Describe maintenance of exteriors.			
8. Perform exterior maintenance.			

CLTR 200 - Culture and Diversity

(See the [Arts & Sciences] PLAR Guide for instructions on how to PLAR this course)

Your studies will focus on the many dimensions of culture and approaches to promoting inclusion and innovation. You will explore culture in Canadian society as it pertains to Indigenous and immigrant populations. You will also examine the correlation between culture and diversity.

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 how cultural dimensions shape the diversity of Canada.			
2. Discuss the prominent dimensions of culture in Canadian society such as tradition, familial relations, and employment.			
3. Describe the interrelationships produced when the dimensions of various cultures interact.			
4. Describe the dimensions of culture as it relates to Indigenous and immigrant populations.			
5. Discuss the correlation between culture, diversity, and innovation.			

ENGP 106 - Power Lab 2

You will practice workplace safety. You will perform boiler inspection and maintenance in accordance to provincial codes and regulations. You will test the interlock for the boilers. You will perform water tests. You will interpret combustion and draft data.

Credit unit(s): 4.0
Prerequisites: ENGP 107
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 basic boiler operation and safety regulations.			
2. Perform routine boiler maintenance and inspection.			
3. Test boiler interlocks.			
4. Discuss the need for water treatment.			
5. Perform water tests and chemical additions.			
6. Describe combustion and draft analysis.			
7. Interpret combustion and draft data.			
8. Maintain steam pressure with changing load demand.			
9. Operate a fuel oil boiler.			

PROJ 287 - Project Management

You will be introduced to project management. You will examine the basic theory of project planning and control, from project initiation to project close out. You will apply research techniques and various tools to practice project management theory in a variety of projects. You will practice skills using project management software.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): MGMT 222, PROJ 227

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 project management concepts.			
2. Explain the process to initiate a project.			
3. Create a project plan using project management software.			
4. Explain the methods used to execute a project plan.			
5. Explain monitoring requirements of a project.			
6. Discuss closing requirements of a project.			

RFRG 104 - Refrigeration and Air Conditioning Systems

You will be introduced to principles and theories related to refrigeration systems. You will discuss refrigerants as well as refrigeration components and equipment. You will operate and maintain refrigeration equipment.

Credit unit(s):	4.0
Prerequisites:	THER 182
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 theory and principles of refrigerants.			
2. Describe the operating principles of compression refrigeration systems.			
3. Discuss heat exchangers and refrigeration accessories.			
4. Describe cooling towers and air conditioning systems.			
5. Describe refrigeration metering devices and cycle controls.			
6. Discuss pre-startup and operations procedures in a compression refrigeration system.			
7. Operate various refrigeration systems.			

SFTY 121 - Health and Safety Awareness

You will study Occupational Health and Safety (OHS) principles, acts, and regulations essential for ensuring a safe working environment. Through practical applications and theoretical learning, you will explore key components of workplace safety, hazard management, and incident response, with a focus on the unique demands.

Credit unit(s): 4.0
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 Occupational Health and Safety acts and regulations.			
2. Discuss asbestos awareness.			
3. Discuss leadership for safety.			
4. Discuss the correct selection, use, and maintenance of personal protective equipment.			
5. Complete the process of conducting hazard assessments.			
6. Explain the principles of fall protection.			
7. Demonstrate the key steps involved in incident investigations.			
8. Describe an effective safety management system.			
9. Complete a health and safety audit.			

SEM 101 - Technology Seminars

Your orientation will include discussions regarding the role of technicians/technologists in the workplace and society. You will study time management skills, diversity in the workplace, principles of sustainability and safety requirements.

Credit unit(s):	1.0
Prerequisites:	none
Corequisites:	none
Equivalent course(s):	ORTN 120, SEM 104

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. Develop study and time management skills.			
2. Recognize diversity in the workplace.			
3. Recognize principles of sustainability to work.			
4. Discuss professional ethics, responsibility and accountability.			
5. Discuss the impact of technology on society.			
6. Describe workplace safety procedures.			

WSTE 100 - Consumption, Waste and Energy Management

You will explore the relationship between energy consumption, waste management, and efficient energy practices in building systems. You will learn how to evaluate and optimize energy use in residential, commercial, and industrial buildings, focusing on waste reduction, sustainable design, safe disposal procedures, and managing energy costs.

Credit unit(s):	4.0
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. Define types of waste.			
2. Discuss water saving measures in buildings.			
3. Describe safe procedures for the disposal of hazardous waste.			
4. Describe the safe storage of dangerous goods.			
5. Describe proper disposal and recycling of general waste.			
6. Describe various types of building construction and maintenance.			
7. Discuss the design, construction, and operation of green buildings.			
8. Perform an energy audit.			
9. Discuss the efficiency of equipment in a building.			

BLDG 117 - Building Automation

You will be introduced to building control systems in medium to large size buildings and study various types of controllers. You will learn how to manage central control systems as well as practice operating basic control systems. You will identify the safety and control of building lighting systems.

Credit unit(s): 4.0
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 safety in automation.			
2. Describe the terms and components of a building automation system.			
3. Discuss future proofing.			
4. Describe direct digital control (DDC) systems.			
5. Describe building cabling architecture and network systems.			
6. Describe non-programmable controllers.			
7. Describe programmable controllers.			
8. Operate a building automation system.			

ENRG 100 - Renewable Energy

You will examine alternative energy sources. You will identify where to access government grants and funding agencies in the alternative energy sector.

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. Discuss alternative energy sources.			
2. Discuss utilization of alternative energy.			
3. Discuss sustainable energy.			
4. Examine solar energy.			
5. Examine biomass.			
6. Examine wind energy.			
7. Examine geothermal.			
8. Identify grant and funding agencies in the alternative energy sector.			

PROJ 109 - Capstone Project

You will reflect on the skills, training, and knowledge you acquired throughout your work experience. Using the knowledge you acquired in the program, you will prepare a presentation recommending changes for the company for possible implementation.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: WORK 108
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. Reflect on the workplace experience.			
2. Identify recommended building systems changes.			
3. Identify cost saving measures for the building.			
4. Prepare a presentation.			
5. Deliver a presentation.			

WORK 108 - Work Experience

You will have an opportunity to observe and participate in the operation of a boiler in the workplace. This experience will help you relate the theory you learned to an operational plant. It will also help you develop contacts for possible future employment.

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. Work safely as part of a team.			
2. Operate and/or observe the operation of boilers.			
3. Communicate effectively in the workplace.			
4. Conduct water tests.			
5. Participate in maintenance procedures.			
6. Write a work placement report.			