

We acknowledge and respect that we are gathered on the traditional lands of the Anishnaabe People of Turtle Island and proudly recognize our local host Atikameksheng Anishnawbek. We also recognize the contributions of Wahnapiatae First Nation and the Metis Nation of Ontario.

Course Title	Applied Technology I				
Course Code:	PRT1000	Credit Value:	4	Credit Hours:	56
Programs:	ATDC Applied Technology - Dual Credit PRET Pre - Trades/Technology				
Equivalencies		Prerequisites		Corequisites	

This course may be delivered in a variety of different formats: 100% in-class, 100% online (or a blend of both), videoconferencing, distributed learning or off-campus. Please confirm with your faculty member which format will be used for your section of this course.

General Education Course:	☐	Eligible for PLAR:	☒
Degree Breadth Course:	☐	Experiential Learning:	☐
Research Intensive Course Designation:	☐		

COURSE DESCRIPTION

In this course, students will have the opportunity to develop technical skills that will serve as a strong basis for successful entry into today's trades and technology environments. This introductory course will combine theoretical and hands-on training, with an emphasis on workplace safety. Students will be trained on the proper usage of various hand and power tools through metal and woodworking projects, while studying topic areas that include an introduction to mechanical systems such as gears, wheel and axles, and 2/4 stroke combustion engines. Construction technology will be examined including framing, sheathing and insulation.

Date: May 28, 2026

Alison Caruso

Approved by: _____

ALISON CARUSO
 Chair, Schools Of Engineering Tech & Enviro.
 Studies, Schools Of Skilled Training, Engineering
 Technology & Environmental Studies

Effective: Fall 2026, Winter 2027, Spring 2027

RELATIONSHIP TO PROGRAM VOCATIONAL LEARNING OUTCOMES

PROGRAM LEVEL	
This course contributes to your program by allowing you to demonstrate the following vocational learning outcomes:	
Program(s)	Vocational Learning Outcomes
Pre-trades/Technology	College Standards 1. Apply basic mathematical, physical, and chemical concepts to the performance of assigned tasks. 2. Contribute to the collection, processing, and interpretation of technical data related to projects. 3. Contribute to the effective planning, implementation, and conclusion of projects. 4. Analyze and solve technical problems by applying principles of mathematics and science. 5. Diagnose, analyze, and solve problems using various small engines. 6. Analyze and solve routine technical problems related to mechanical environments through the application of engineering principles. 7. Interpret, translate, analyze, and produce drawings and other related technical documents. 8. Apply knowledge of appropriate safety procedures and standard shop practices.

COURSE CURRICULUM**Topics/Concepts Covered in This Course**

- Safety in the shop
- Proper usage of selected hand and power tools
- Schematics/blueprinting
- Construction technology: Framing, rafters, insulation
- Mechanical Advantage of machines: Wheel/Axle and Gears
- Combustion engines: 2-stroke, 4-stroke, diesel

COURSE LEVEL: Learning Outcomes and Objectives	
To earn credit for this course, you must reliably demonstrate your ability to:	
Learning Outcome	Objectives
1. work safely with tools and machinery in a shop environment.	1.1 Explain the importance of health and safety at the workplace. 1.2 Research and identify the safety devices installed on shop equipment.

Learning Outcome	Objectives
	1.3 Conduct safety inspections and evaluate risks vs hazards 1.4 Undergo training and demonstrate proficiency in the safe use of tools and equipment.
2. analyze and develop schematics and blueprints for course projects	2.1 Develop understanding of scaling as applied to construction drawings 2.2 Differentiate between and draw isometric and orthographic views for projects 2.3 Follow a set of plans to convert primary materials to a finished product
3. identify construction techniques for the distribution of forces in floors, walls, roofs, etc	3.1 Study the effects of various forces that act upon solid structures such as floors, walls and roofs. 3.2 Research structural components of walls and roofs such as joists, lintels, studs and rafters. 3.3 Relate traditional Indigenous building techniques to modern architecture. 3.4 Construct a shed composed of walls and rafter-framed roof.
4. Analyze the roles of various simple machines in increasing the ease of mechanical tasks.	4.1 Study the applications of simple machines such as wheel & axle and gear systems 4.2 Calculate the mechanical advantage (MA) and determine the % efficiencies associated with the usage of machines. 4.3 Investigate the synergy of multiple simple machines in the abilities of complex machines, such as a combustion engine.
5. apply the knowledge and skills required to dismantle, assemble and troubleshoot a combustion engine.	5.1 Study the forms of internal combustion engines, and relate types to their intended usage. 5.2 Differentiate between the combustion cycles of 2-stroke, 4-stroke and diesel engines. 5.3 Demonstrate an understanding of the chemistry behind the combustion reaction, to aid in diagnosis and troubleshooting. 5.4 Develop the mechanical skills to dismantle, inspect and reassemble selected small engines. 5.5 Study common failure states for combustion engines, and develop/utilize troubleshooting steps to determine their causes.

Essential Employability Skills

Communication

- communicate clearly in written, spoken, and visual form that fulfills purpose/needs of audience.
- respond to written, spoken, or visual messages in a manner that ensures effective communication.

Numeracy

- execute mathematical operations accurately.

Critical Thinking and Problem Solving

- apply a systematic approach to solve problems.
- use a variety of thinking skills to anticipate and solve problems.

Information Management

- not applicable

Interpersonal

- show respect for the diverse opinions, values, belief systems, and contributions of others.
- interact with others in groups in ways that contribute to effective working relationships.

Personal

- manage the use of time and other resources to complete projects.
- take responsibility for one's own actions, decisions, and consequences.

Delivery Method

- Classroom: Course is delivered through scheduled synchronous teaching that may be face-to-face and/or virtual.

Learning Activities

- Lectures
- Class Discussions
- Labs
- Research
- In-Class Exercises

Resources Required

Additional Supplies

30 cm metal ruler

Estimated Cost: 5

8" CSA Safety Metguard footwear

Full height steel toe, metatarsal protection and sole plate

Estimated Cost: 300

Scientific Calculator

Estimated Cost: 20

Safety glasses

Estimated Cost: 10

Shop appropriate clothing

Natural fibers, non-baggy with no strings. NO HOODIES

Estimated Cost: 100

Evaluation Plan

Grading Scheme

A	80% - 100%
B	70% - 79%
C	60% - 69%
F	0% - 59%

Evaluation Method	Value (%)
Assignments	30%
6 assignments, 5% each	
Applied Activities (G)	40%
Three projects are to be completed, including::	
Deck chair (10%)	
Shed construction (25%)	
Small engine (5%)	
Test/Exam	30%
3 tests, 10% each	

ADDITIONAL INFORMATION

A course outline is the College's commitment to the students. It supports educators, students, employers, and external partners in determining the depth of knowledge and level of performance that a student will be able to demonstrate upon successful completion of a course. Both instructor and student are obligated to follow the content of the course outline. It is your responsibility to meet these outcomes as assigned.

Note: You should maintain a copy of this course outline for your records. You may require this course outline if you seek transfer credits or further studies at other institutions.

Cambrian Email Addresses

All email correspondence with currently registered students must be via the students' College-issued email, as per the College's [IT Acceptable Use Policy](#). Students must familiarize themselves with the IT Acceptable Use Policy, as it outlines the acceptable use of College information systems and technology, and mitigates risks to the College's IT infrastructure.

Bring Your Own Device (BYOD) and Apps Anywhere

Cambrian College is a BYOD institution, which means that students bring the device of their choice that meets program-specific minimum technology requirements. Program-specific minimum technology requirements can be viewed on program pages on the Cambrian College website. AppsAnywhere is an easy-to-use app store-like platform providing students with a way to access their College apps and software on demand, anywhere, anytime both on and off campus. These both enrich the student learning experience in and out of the classroom, while providing maximum flexibility.

Policies

It is the student's responsibility to be aware of the College's policies. Policies, procedures and forms can be found on the [College website](#).

Academic and Student Services

Cambrian has a variety of student and academic services to support students during their academic journey at the College.

- [Academic Integrity Office](#)
- [Academic Success Centre](#)
- [Bookstore and Campus Store](#)
- [International Student Support Services](#)
- [KPMG Pride Centre](#)
- [Career Centre](#)
- [Registrar's Office \(Enrolment Centre\)](#)
- [First Step Centre](#)
- [Accessibility Services](#)
- [Library](#)
- [Pathways](#)
- [Available Scholarships and Bursaries](#)
- [Cambrian Student Council \(CSC\)](#)
- [Cambrian Indigenous Student Circle \(CISC\)](#)
- [Cambrian Athletic Association \(CAA\)](#)
- [Student Life Centre](#)
- [Test Centre](#)
- [The Learning Centre \[Tutoring Services\]](#)
- [Wabnode Centre for Indigenous Services](#)
- [Women's Resource Centre](#)

Copyright

Copyright is the exclusive legal right given to a creator to reproduce, publish, sell, or distribute his/her work. All members of the Cambrian community are required to comply with Canadian copyright law, which governs the reproduction, use and distribution of copyrighted materials. This means that the copying, use and distribution of copyright-protected materials, regardless of format, are subject to certain limits and restrictions. For example, activities such as photocopying or scanning an entire textbook or uploading class materials to a course sharing site are prohibited.

See the [Cambrian Library website](#) for additional information regarding copyright and for details on allowable limits.

Audio/Visual Capture

Sounds and images from this class, and contributions made by a participant, virtually or in-person, are recorded under the authority of the *Ontario Colleges of Applied Arts and Technology Act, 2002*. The main purpose of these recordings is to allow students enrolled in the course to review content and engage in activities, whether they attend any given class in person, virtually, or at all. Class recordings are for personal use only and shall not be shared or transferred. Faculty may also review these recordings to prepare for future classes, evaluate students, collaborate in program reviews, or provide feedback to faculty and/or students. Any questions about the use of multimedia recordings may be addressed to your respective Dean.

Equity, Diversity, and Inclusivity

Cambrian is committed to building and preserving an equitable, diverse, and inclusive learning community where students, faculty, and staff may achieve their full potential in an environment

characterized by equality of respect and opportunity. All students and employees have the right to live and work in an environment that is free from discrimination and harassment. Therefore, Cambrian College will not tolerate any form of discrimination or harassment in its employment, education, accommodation, or business dealings. For more information, please visit: [Equity, Human Rights, and Accessibility](#).

Prior Learning Assessment and Recognition (PLAR)

Students wishing to have work or life experience that meets course learning outcomes considered for credit through Prior Learning Assessment and Recognition should email the Enrolment Centre at records@cambriancollege.ca.

Transfer Credit

Students wishing to have courses from other programs or institutions assessed for equivalency and/or transfer credit should visit the [Transfer Credits page](#) on the Cambrian website. The student should maintain a copy of this course outline for their records. Students may require this course outline if seeking transfer credits or further studies at other institutions.

Test Proctoring at Cambrian

Many courses include major tests and/or final exams. The practice at Cambrian requires that these types of test situations involve proctoring to ensure academic integrity. Online tests/exams may employ a proctoring services to enable you to take your exam from a location of your choosing within a period specified by your instructor. When you are taking an online test/exam, the proctoring service may capture your video, screen, audio, and web surfing data to protect academic integrity. Cambrian College collects, uses, discloses, and retains personal information in compliance with the *Freedom of Information and Protection of Privacy Act (FIPPA)*. Your personal information is being collected under the authority of the *Ontario Colleges of Applied Arts and Technology Act S.O. 2002, c.8, Sched. F*. This information will be used for the purpose of administering a test/exam through an online proctoring service acting as an authorized agent of the College. Please refer to Cambrian's [Official Student Records Policy](#) for more details. If you have any questions regarding the collection of your personal information, please contact Vice President Academic, Cambrian College, 1400 Barry Downe Rd., Sudbury ON P3A 3V8, 1-705-566-8101 ext. 6245.

Schools of Skilled Training, Engineering Technology & Environmental Studies Regulations**Lab Attendance**

This course includes a mandatory lab component. The grading in this course will include the evaluation of lab reports and performance during labs.