

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	Metal Trades Practices				
Course Code:	WLD1003	Credit Value:	3	Credit Hours:	42
Programs:	WFTN Welding And Fabrication Technician				
Equivalencies		Prerequisites		Corequisites	GOM1130

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 acquire theoretical and practical knowledge to supplement the skills required in a shop atmosphere, identify potential workplace hazards and determine the necessary personal protection against common shop and construction hazards. They will be introduced to the safe use and common operation, terminology and maintenance of fabrication equipment for forming plate and structural steel. The students will be able to explain material handling components and techniques and inspection methods. Finally, they will be introduced to the Workplace Hazardous Materials Information Safety (WHMIS) and the Occupational Health and Safety Act (OHSA).

Date: June 04, 2024

Approved by: 

KIM CRANE
 Chair, Schools Of Skills Training, Engineering
 Technology & Environmental Studies

Effective: Fall 2024, Winter 2025, Spring 2025

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
Welding And Fabrication Technician	<p>College Standards</p> <ol style="list-style-type: none"> 1. Recognize safety and health hazards in welding, rigging, fabrication and construction projects and demonstrate the ability to work safely in various industrial and construction environments. 2. Demonstrate the skills required to identify, select and accurately solve mathematical problems using fundamental principles and concepts of mathematics and related formulae. 3. Select, set up and demonstrate manual and mechanized thermal cutting equipment in accordance with government safety regulations, manufacturer's recommendations and industry standards.

COURSE CURRICULUM

Topics/Concepts Covered in This Course

- Application of Lab Tools
- Common Fabrication Practices
- Manual and Automatic Oxy/Acetylene Burning
- Correct and Safe Operation of Lab Equipment
- Equipment Limitations
- Equipment Malfunctions
- W.H.M.I.S.
- P.P.E.
- M.S.D.S./S.D.S
- O.S.H.A
- Work Place Hazards
- Hand and Power Tools

COURSE LEVEL: Learning Outcomes and Objectives	
To earn credit for this course, you must reliably demonstrate your ability to:	
Learning Outcome	Objectives
1. Describe the necessary personal protection against common shop and construction hazards.	<ol style="list-style-type: none"> 1.1 Demonstrate how to avoid electrical shock, fumes and gases and proper usage of appropriate helmet and filter plates. 1.2 Develop and understand fire hazards, heat, sparks, burns and wearing the appropriate clothing.

Learning Outcome	Objectives
	1.3 Describe radiation, ultra violet, infrared, visible light and how to avoid harmful exposure. 1.4 Describe appropriate actions required to prevent excessive noise, falling objects and proper fall protection.
2. Explain the safe use and operation of equipment.	2.1 Explain the process of safely storing and handling of compressed gas cylinders. 2.2 Identify and effectively use power tools, hand tools, fabricating and automated equipment and follow proper lockout procedures.
3. Describe the Workplace Hazardous Materials Information System (WHMIS).	3.1 Know Pertinent Legislation 3.2 Develop an understanding of the right to know legislation, safe handling of products, hazardous materials and Material Safety Data Sheets (MSDS) and how it has changed to SDS.
4. Describe the Occupational Health and Safety Act (OHSA).	4.1 Know Pertinent Legislation 4.2 Develop an understanding of government legislation and responsibilities of the employer and employee.
5. Identify potential Workplace Hazards.	5.1 Define confined spaces, oxygen depletion, moving equipment, tripping hazards, emergency responses, incident reports and fires. 5.2 Identify confined spaces, oxygen depletion, moving equipment, tripping hazards, emergency responses, incident reports and fires.
6. Describe the application and use of small hand and power tools.	6.1 Develop an understanding of the safe operation of small hand tools such as the chipping hammer, wire brush, side cutters, hammer, cold chisel, pliers, vise grips, hack saw, scalers, and measuring tape. 6.2 Develop an understanding of the safe operating of pneumatic and electric powered hand tools such as pedestal grinders, disc grinders, portable drills, bench grinders and abrasive cut-off saws as well as die grinders, the drill press and nibblers.
7. Describe and explain the set up procedures required to properly operate common fabrication equipment.	7.1 Demonstrate the set up of the brake press for bending and forming of various plate thicknesses and compositions. 7.2 Demonstrate the functions of an iron worker safely and efficiently. 7.3 Demonstrate the operation of the bending rolls safely and efficiently. 7.4 Demonstrate a thorough understanding of the safe operation of the drill presses.

Learning Outcome	Objectives
	7.5 Demonstrate the operation of the burning table safely and efficiently. 7.6 Demonstrate the safe operation of various welding equipment.
8. Utilize various types of thermal cutting equipment safely and correctly.	8.1 Produce clean, slag free cuts with oxy/fuel cutting equipment. 8.2 Produce clean, slag free cuts with plasma cutting equipment. 8.3 Produce clean, slag free cuts with carbon arc gouging equipment. 8.4 Perform safe set up/ shut down of an oxy/fuel station 8.5 Identify various components of an oxy/fuel cutting station. 8.6 Recognize potential safety hazards associated with thermal cutting operations.
9. Operate common fabrication hand tools safely.	9.1 Demonstrate the operation of magnetic drills safely and efficiently. 9.2 Demonstrate the operation of hand held plate shears safely to produce clean and accurate cuts. 9.3 Demonstrate safe operation of hand held files. 9.4 Demonstrate the use of trammel points. 9.5 Apply accurate lines using a ball peen hammer and center punch. 9.6 Demonstrate the proper use of various levels for the alignment of fabrications.
10. Set up and demonstrate the proper use of various types of welding and fabrication equipment correctly.	10.1 Set up and demonstrate the proper use of oxy/fuel equipment. 10.2 Set up and demonstrate the proper use of welding equipment. 10.3 Set up and demonstrate the proper use of fabrication equipment. 10.4 Set up and demonstrate the proper use of plasma arc cutting equipment.
11. Identify and apply the safe use of common rigging equipment.	11.1 Demonstrate the safe use of common lifting devices, (chains, wire rope, nylon slings plate clamps) 11.2 Safely operate shop crane 11.3 Conduct safety inspections of commonly used lifting devices 11.4 Identify proper crane hand signals and their applications.

Learning Outcome	Objectives
	11.5 Calculate load weights and select appropriate lifting equipment.

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

- locate, select, organize, and document information using appropriate technology and info systems.
- analyze, evaluate, and apply relevant information from a variety of sources.

Interpersonal

- 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
- Group Work
- Research
- Self-Directed Learning
- Scenario Testing
- Physical Activity
- In-Class Exercises
- Small Group Instruction
- One-to-One Instruction
- eLearning Components

Resources Required

Additional Supplies

1st semester tools from WFTN tool list

1. Slip Joint Pliers or Vise Grips
2. MIG Pliers
3. Chipping Hammer
4. Wire Brush
5. Striker
6. Tip Cleaner
7. Tape Measure (combination or separate metric/imperial)
8. Combination square set (bevel square, centering head, and protractor head)
9. Center Punch - 3/8 in, 1/2 in.
10. 4.5" Grinder (optional)
11. Ball Peen Hammer 1.5 lbs.
12. Welding Jacket
13. Fillet Weld Gauges

Personal Protective Equipment

Students must have all PPE as required by Cambrian College Policies

Evaluation Plan

Grading Scheme

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

Evaluation Method	Value (%)
Test/Exam	60%
Theory - 2 Tests of equal value. Worth 40%	
Quizzes - 10 quizzes of equal value Worth 20%	
Applied Activities (G)	30%
Lab 1, 3%	
Lab 2, 3%	
Lab 3, 3%	
Lab 4, 3%	
Lab 5, 1.5%	
Lab 6, 1.5%	
Lab 7, 1.5%	
Lab 8, 1.5%	
Lab 9, 1.5%	
Lab 10, 1.5%	
Lab 11, 1.5%	
Lab 12, 1.5%	
Lab 13, 1.2%	
Lab 14, 1.2%	
Lab 15, 1.2%	
Lab 16, 1.2%	
Lab assignments. Worth 30%	
Professional Conduct	10%
Professional conduct throughout the semester will count towards the determination of your final grade.	
This mark is based on preparedness for classes, interaction with peers / faculty, adherence to safety requirements / policies, and overall professionalism in the lab	

ADDITIONAL INFORMATION

A course outline is the College's commitment to the students. It supports educators, students, employers and other external stakeholders 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 requirements. Program-specific requirements can be viewed in the "Plan Your Future" section on program web pages. AppsAnywhere is an easy-to-use app store-like platform providing students 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 [Academic Policies](#). The Academic Policies apply to all applicants to Cambrian and all current students enrolled in any program or course offered by Cambrian, in any location. Academic policies, procedures, and forms can be found on the Cambrian 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 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, photocopying or scanning an entire textbook is prohibited, nor is uploading class materials to course sharing sites.

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 contact the [Pathways Office](#).

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.