

Course Outline

Course Title:	Applied Welding/Cutting Processes		
Course Number:	MECH414	Approval Date:	2025/8/30
Course Hours:	45 hours	Academic Year:	2025
Academic School:	School of Trades & Technology		
Program Co-ordinator or Equivalent:	Susan Brown - Susan.Brown2@flemingcollege.ca		
Dean (or Chair):	Lisa Fenn - Lisa.Fenn@flemingcollege.ca		

Course Description

This course will introduce the student to the welding industry. The student will learn techniques in OFW (Oxy-Fuel Welding), OFC (Oxy-Fuel Cutting), SMAW (Shielded Metal Arc Welding) and GMAW (Gas Metal Arc Welding). In addition to technique practices, the student will be taught the industry standard for safety and proper operation with a variety of welding and cutting equipment.

Prerequisites: None.

Corequisites: None.

Course Delivery Type

Face-to-Face

All course hours are delivered in person at the delivery location specified on the academic timetable.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Describe the safe material handling operations, Industrial Safety Acts and potential workplace hazards in accordance with government safety regulations, manufacturers recommendations and approved industry standards.
2. Describe the necessary personal protection against common shop and construction hazards.
3. Explain the safe use and operation of oxy-fuel equipment including the storage and handling of compressed gas cylinders.

4. Perform safe set-up, operation and maintain equipment for Oxy-Fuel Welding (OFW), Braze Welding (BW), and Gas Metal Arc Welding (GMAW).
5. Perform butt and lap welds on mild steel with the OFW process, the BW process, and the GMAW process.
6. Explain and demonstrate the safe set-up and operation of various tools and equipment used in a welding shop.
7. Describe the functions and controls of welding power sources in accordance with government safety regulations, manufacturer recommendations and approved industry standards.
8. Apply sustainable practices in the welding shop.

Learning Resources

On-line materials

Costs for learning resources can be found on the Campus Store website, using the links below, or by visiting the Campus Store location at your campus.

- Sutherland: <https://www.bkstr.com/sfleming-sutherlandstore/home>
- Frost: <https://www.bkstr.com/sfleming-froststore/home>

Assessment Summary

Assessment Task	Percentage
In-class activities	10%
Labs	20%
Quizzes	15%
Assignments	45%
Tests	10%

Student Success: Policies and Procedures

Mutually, faculty and learners will support and adhere to college Academic Regulations, and Student Rights and Responsibilities. The following policies and guidelines have been developed to support the learning process.

Please click on the link for information about:

- [Academic Integrity \(2-201A\)](https://department.flemingcollege.ca/hr/attachment/7750/download)
(<https://department.flemingcollege.ca/hr/attachment/7750/download>)
- [Accessibility for Persons with Disabilities \(3-341\)](https://department.flemingcollege.ca/hr/attachment/5619/download)
(<https://department.flemingcollege.ca/hr/attachment/5619/download>)
- [Grading and Academic Standing \(2-201C\)](https://department.flemingcollege.ca/hr/attachment/7752/download)
(<https://department.flemingcollege.ca/hr/attachment/7752/download>)

- [Guidelines for Professional Practice: Students and Faculty](https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf)
(<https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf>)
- [Student Rights and Responsibilities \(5-506\)](https://department.flemingcollege.ca/hr/attachment/269/download)
(<https://department.flemingcollege.ca/hr/attachment/269/download>)

If you will need academic accommodations (for example if you have a learning disability, mental health condition such as anxiety or depression or if you had an IEP in high school), please contact the [Accessible Education Services \(AES\)](https://department.flemingcollege.ca/aes/) department (<https://department.flemingcollege.ca/aes/>) to meet with a counsellor.

Alternate accessible formats of learning resources and materials will be provided, on request.

Program Standards

The **Ministry of Colleges and Universities** oversees the development and the review of standards for programs of instruction. The **Ministry of Labour Training and Skills Development** oversees the development and the review of standards for programs of instruction for Apprenticeship training in the province of Ontario. Each college is required to ensure that its programs and program delivery are consistent with these standards, and must assist students to achieve these essential outcomes.

This course contributes to Program Standards as defined by the [Ministry of Colleges and Universities](#) (MCU). Program standards apply to all similar programs of instruction offered by colleges across the province. Each program standard for a postsecondary program includes the following elements:

- **Vocational standards** (the vocationally specific learning outcomes which apply to the program of instruction in question);
- **Essential employability skills** (the essential employability skills learning outcomes which apply to all programs of instruction); and
- **General education requirement** (the requirement for general education in postsecondary programs of instruction that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; and, the society in which they live and work).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program. For further information on the standards for your program, follow the MCU link (www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/).

Detail Plan

Term: 2025 Fall

Session
Code: DC

**Program Co-ordinator or
Equivalent:**

Cody Simpson - Cody.Simpson@flemingcollege.ca

Susan Brown - Susan.Brown2@flemingcollege.ca

Dean (or Chair):

Lisa Fenn - Lisa.Fenn@flemingcollege.ca

**Academic Planning and
Operations Department:**

Jonathan Taylor - jonathan.taylor@flemingcollege.ca

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Unit 1	Shop orientation,PPE requirements,outline review, lecture 1 powerpoint	1,2,6,8	Quiz 1 and Grinder Quiz
Unit 2	Oxy-fuel safety lecture 2 power point	1,2,3,4,8	Quiz 2 and Shear Quiz
Unit 3	Oxy fuel welding with filler lecture 3 powerpoint	1,2,3,4,8	Quiz 3
Unit 4	Oxy fuel brazing with LFB lecture 4 powerpoint	1,2,3,4,8	Quiz 4
Unit 5	Oxy fuel cutting safety lecture 5 powerpoint	1,2,3,4,8	Quiz 5
Unit 6	Cylinder safety lecture 6 powerpoint	1,2,3,4,8	Quiz 6
Unit 7	Oxy fuel torches lecture 7 powerpoint	1,2,3,4,8	Quiz 7
Unit 8	GMAW safety lecture 8 powerpoint	1,2,3,4,5,6,8	Quiz 8
Unit 9	GMAW machine set up lecture 9 powerpoint	1,2,3,4,5,6,8	Quiz 9
Unit 10	Plasma safety lecture 10 powerpoint	1,2,3,4,5,6,7,8	Quiz 10
Unit 11	Plasma set-up lecture 11 powerpoint	1,2,3,4,5,6,7,8	Quiz 11
Unit 12	Manual Plasma cutting lecture 12 powerpoint	1,2,3,4,5,6,7,8	Quiz 12
Unit 13	Review	1,2,3,4,5,6,7,8	Self study and exam preparation
Unit 14	Exam	1,2,3,4,5,6,7,8	Final exam 25% of final mark

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Lab Participation and safe work practices	As per schedule	1,2,3,4,5,6,7,8	15%
Weekly quizzes	As per schedule	1,2,3,4,5,6,7,8	10%
Module tests	As per schedule	1,2,3,4,5,6,7,8	20%
Final Exam	As per schedule	1,2,3,4,5,6,7,8	25%

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Practical equipment assessment	As per schedule	1,2,6	15%
Equipment quizzes	As per schedule	1,2,6	5%
Culminating project completion	Bonus marks	1,2,3,4,5,6,7,8	10%

All quizzes associated to a lecture **must be completed prior** to attending the lab for that lecture.

Exemption Contact

Susan Brown

Coordinator - Trade Fundamentals

susan.brown2@flemingcollege.ca

Prior Learning and Assessment and Recognition (PLAR)

PLAR uses tools to help learners reflect on, identify, articulate, and demonstrate past learning which has been acquired through study, work and other life experiences and which is not recognized through formal transfer of credit mechanisms. PLAR options include authentic assessment activities designed by faculty that may include challenge exams, portfolio presentations, interviews, and written assignments. Learners may also be encouraged and supported to design an individual documentation package that would meet the learning requirements of the course. Any student who wishes to have any prior learning acquired through life and work experience assessed, so as to translate it into a college credit, may initiate the process by applying through the Registrar's office. For more information please click on the following link: <http://flemingcollege.ca/admissions/prior-learning-assessment-and-recognition>

Course Specific Policies and Procedures

It is the responsibility of the student to retain this course outline for future reference. Course outlines may be required to support applications for advanced standing and credit transfer to other educational institutions, portfolio development, PLAR and accreditation with professional associations.

Synchronous sessions may be recorded. As a result, your image, voice, name, personal views and opinions, and course work may be collected under legal authority of section 2 of the Ontario Colleges of Applied Arts and Technology Act, 2002. This information will be used for the purpose of supporting student learning. Any questions about this collection can be directed to the Privacy and Policy Officer at freedomofinformation@flemingcollege.ca or by mail to 599 Brealey Drive, Peterborough, ON K9J 7B1.

Timely attendance is mandatory for your success and completion of assignments in your lectures and labs.
Lateness will not be tolerated.