

Course Outline

Course Title:	Introduction to Mechanical Trades		
Course Number:	MECH255	Approval Date:	2020/9/15
Course Hours:	45 hours	Academic Year:	2020
Academic School:	School of Trades & Technology		
Faculty:	Jeff Hubers - Jeff.Hubers@flemingcollege.ca		
Program Co-ordinator or Equivalent:	Simon Mokedanz - simon.mokedanz@flemingcollege.ca		
Dean (or Chair):	Kris McBride - kristine.mcbride@flemingcollege.ca		

Course Description

This course outline may reflect alternative deliveries and assessments in response to the Ontario Government health and safety requirements for COVID-19. Course and Program Learning Outcomes shall not be impacted by any changes.

This course introduces students to a variety of mechanical trades. Plumbing, electrical and HVAC processes and practices will be explored. Emphasis will be placed on the building as a system and how mechanical trades and carpentry interrelate. Students will be introduced to basic project management processes used in the industry.

Prerequisites: None.

Corequisites: None.

Learning Outcomes

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

1. Identify residential plumbing materials, tools and equipment.
2. Identify Drain Waste Vent -DWV- fittings, materials and standard plumbing fixtures and components.
3. Solder copper supply fittings.
4. Identify safety hazards related to electrical wiring and appropriate safety procedures and practices these procedures in a lab setting.
5. Identify and use tools and equipment associated with the electrical trade.

6. Identify various light switches, receptacles, wiring types and combinations.
7. Wire light, switches and receptacles in various combinations.
8. Identify safety hazards related to the trade of HVAC and appropriate safety procedures and practices these procedures in a lab setting.
9. Identify and use tools and equipment associated with the HVAC trade.

Learning and Technology Resources

Lecture Handouts, Lab Activities, Visual Media, Discussion Groups, Internet, Library, and any other resources provided throughout the duration of the course.

Assessment Summary

Assessment Task	Percentage
Labs	60%
Quizzes	40%

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:	2020 Fall	Session Code:	DC
Class Section:	90		
Faculty:	Bill Cummins - Bill.Cummins@flemingcollege.ca Jeff Hubers - Jeff.Hubers@flemingcollege.ca Thomas Lynch - Thomas.Lynch@flemingcollege.ca		
Program Co-ordinator or Equivalent:	Pam Stoneham - Pam.Stoneham@flemingcollege.ca		
Dean (or Chair):	Pam Stoneham - Pam.Stoneham@flemingcollege.ca		
Academic Planning and Operations Department:	Jonathan Taylor - jonathan.taylor@flemingcollege.ca William Howe - William.Howe@flemingcollege.ca		

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Unit 1 - 1 Plumbing	Introduction to the course and course outline. Introduce plumbing as a career, specific jobs, benefits and disadvantages. The Plumbing Cycle. Identification: materials, equipment, systems & valve types.	1, 2, 3	Soldering: bench project #1
Unit 1 - 2 Plumbing	Demonstration: copper solder. Project description & project layout.	1, 2, 3	Soldering: bench project #2
Unit 1 - 3 Plumbing	Introduction to venting mechanisms. ABS, PVC - plastic pipe DWV fittings & materials. DWV systems layout for projects.	1, 2, 3	Quiz Group Project Soldering: application project
Unit 1 - 4 Plumbing	Introduction to venting mechanisms. Layout of pressure system for project. Building drainage systems. DWV fittings & materials. DWV systems layout for projects.	1, 2, 3	Installation:Project #1
Unit 1 - 5 Plumbing	Plumbing System: fixtures, location. Design & layout - washroom/bathroom- Group Project explanation. Use and Identification: water treatment systems, pressure systems, water heaters.	1, 2, 3	Installation:Project #2
Unit 2 - 1 Electrical	Introduction to electrician as a career choice. Tool Identification. Repairing an Extension Cord.	4, 5, 6	Electrical Project #1 - Repair an extension cord
Unit 2 - 2 Electrical	Hot & Neutral Wires. Cable Identification. Staple Requirements. Boxes	4, 5, 6, 7	Electrical Project #2 -Boxes, tools, cable and single pole switching
Unit 2 - 3 Electrical	Overcurrent devices Circuit loading Cable Ampacity Receptacles (tabs).	4, 5, 6, 7	Electrical Project #3 - Single pole switching of 2 lamps and circuit loading
Unit 2 - 4 Electrical	Receptacles Single Pole switches Switching	4, 5, 6, 7	Electrical Project #4 - Receptacle installation
Unit 2 - 5 Electrical	Split Receptacles 2 and 3 conductor cables Switching	4, 5, 6, 7	Electrical Project #5 - Switching a split receptacle

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Unit 3 - 1 HRAC	Introduction to HRAC, tools and equipment	8, 9	HRAC Activity - Tools and Equipment-
Unit 3 - 2 HRAC	Theory of Heat	8, 9	HRAC Activity - Heat Theory
Unit 3 - 3 HRAC	Gas Heat	8, 9	HRAC Activity - Gas Heat
Unit 3 - 4 HRAC	The Refrigeration and Air Conditioning Process	8, 9	HRAC Activity - Refrigeration and Air Conditioning
Unit 3 - 5 HRAC	Review of HRAC Theory and Practice	8, 9	HRAC Test

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Unit 1 - Plumbing projects as detailed by instructor	5 Weeks Duration - Plumbing Projects	1, 2, 3	17%
Unit 1 Test	5 Weeks Duration - Plumbing Test	1, 2, 3	17%
Unit 2 - Electrical projects as detailed by instructor	5 Weeks Duration - Electrical Projects	4, 5, 6, 7	17%
Unit 2 Test	5 Weeks Duration - Electrical Tests	4, 5, 6, 7	16%
Unit 3 - HRAC Projects as detailed by instructor	5 Weeks -Duration - HRAC Assessment	8, 9	17%
Unit 3 Test	5 Weeks -Duration - HRAC Test	8, 9	16%

Note that units 1, 2, and 3 may be sequenced differently depending on the availability of materials and equipment at your location.

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.

1. To gain the most possible benefits from this skill-developing course, students need to attend classes. Learning takes place when you become engaged in the learning process. Your instructor will be recording attendance data and will report absences, late arrivals and early departures to your program co-ordinator.
2. All tests and lab assignments have scheduled due/completion dates. Meeting these due dates is key to your success in this course; your instructor's feedback will add to your learning.
3. Therefore, you must write all tests with the class on the tests' assigned dates. As well, you must complete all lab assignments by the scheduled due date during the scheduled lab time.
4. You will receive a grade of zero for any test not written or lab assignment not completed unless you have made arrangements with your instructor PRIOR TO the due date in question.
5. Your instructor will consider a makeup for missed lab assignments or tests for valid reasons only; for example, documented illness or extenuating personal circumstances. These situations will be discussed on an individual basis.
6. You, the student, are responsible for making these arrangements; your learning and success in this course is a shared goal.
7. Final grades in this course are assigned based on the level of achievement that corresponds to the assessment components as cited in the course outline. It is important to note that faculty member(s) will not offer additional evaluation activities beyond those cited in the course outline.

LATE ASSIGNMENT POLICY

You must submit/present all written/oral assignments on their assigned dates unless you make specific arrangements in writing/voice mail/E-mail with your professor at least 24 hours prior to the due date in question. In the case of any emergency, make arrangements (in writing, if necessary) immediately upon your return. Your professor will make special arrangements for valid reasons only. In the case of

illness, you may be required to provide a medical note. Other extenuating circumstances will be discussed on an individual basis. A penalty of 10% per day will be applied to an assignment not submitted by the original or extended due date. An assignment more than three days late will receive a grade of zero ("0"). Weekends are counted as two days. No assignment will be accepted after the last day of classes without prior arrangement with your professor.

ACADEMIC INTEGRITY

Fleming College opposes any form of academic dishonesty, such as plagiarism, submission of work for which credit has already been received; cheating, impersonation; falsification or fabrication of data; the acquisition of confidential materials, e.g., examination papers; misrepresentation of facts; altering transcripts or other official documents. Please see Academic Regulations Policy for more information on Academic Integrity.