MEDICINE HAT COLLEGE

TRAD 111

Introduction to Trades II - Automotive & Heavy Equipment Service

Fall 2025 - Dual Credit

DCMA

PETER KELLY

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COURSE TIME(S)/ LOCATION(S)

LAB / TUTORIAL TIME(S)

TRAD 111 LB
(DBMA)
Friday
9:00AM-3:00PM
Room T142
Friday
9:00AM-3:00PM
Room T190

CALENDAR DESCRIPTION

Building on TRAD 100, this is an intermediate level course where students will focus their studies in two trades in the transportation sector; Heavy Equipment Technician (HET) or Automotive Service Technician (AST). This course will provide an increased level of specialization, with exposure to more advanced topics in these trades. Hands-on shop time will be preceded by theory topics that will prepare the students for their upcoming shop class.

Hours: 82 (40 Theory and 42 Lab)
Credits: 4.0

Pre-requisites: TRAD 100

Program Delivery may be subject to change due to health or other factors beyond MHC control

LEARNING RESOURCES

Purchase learning resources here: https://bookstore.mhc.ab.ca/course-materials/textbook-search

Personal Protective Equipment (PPE)

- Steel toe boots (with CSA sticker). Open toe, heel, or sole is not permitted.
- Safety glasses, or goggles.
- Puncture/cut resistant gloves.
- Coveralls

Tools/Supplies

- Medicine Hat College Engineering graph paper note pad
- Pens/Pencils/Ruler
- Calculator

Optional (provided by MHC)

- Ear plugs.

COMPUTING AND ELECTRONICS - REQUIRED FOR ALL STUDENTS

- Cell phone or digital camera. Students must be able to take digital pictures of lab projects, tasks, and environments.
- Computer. Students must have access to a computer capable of running the Medicine Hat College Learning Management System (LMS), Blackboard.
- File and electronic data backup storage. Cloud storage for files. [preferred]. All students are provided a Google account that includes Google Drive and Gmail.

Headphones with microphone

- Headphones with microphone required.
- NOTE. Onboard microphones in laptops or desktop computers are not suitable.

Scanning - application or device

- Ability to scan to PDF is required. Android or Apple apps such as Adobe Scan are acceptable

Printing

- The ability to print hard copies is required. Printers and plotters are available on campus.
- If not on campus, then you must have access to a printer, or make use of a local service.

COURSE OBJECTIVES / LEARNING OUTCOMES

General

1. Apply legislation, regulations and practices ensuring safe work.
2. Communicate using industry standard terms and units.
3. Use specialty hand and power tools, and equipment common to the trade.
4. Identify materials, fasteners, tools, and components commonly used in the trade.
5. Assemble components using tools, fasteners, adhesives and sealers common to the trade.
6. Use electronic service information from various sources when diagnosing, servicing or repairing vehicles.
7. Describe basic systems and/or components, and their operation such as electrical, drive, suspension, steering, and breaking.

Module 1: Basic Fasteners, Hand Tools and Linear Measuring tools.

- Identify different fasteners, torquing procedures, hand tools and shop tools
- Identify common imperial measuring tools.
- Explain how each tool measures length, diameter, or thickness.

Module 2: Measuring Tools

- Use rulers, calipers, and micrometers to measure objects.
- Explain the imperial measuring scale used for precision measuring tools
- Apply correct steps to set up and read measuring tools and follow safe procedures when measuring parts or checking tolerances..

Module 3: Brake System Fundamentals

- Describe how hydraulic brakes use fluid pressure, friction, and energy changes to stop a vehicle safely.
- Identify the main components of combination brake systems.
- Service Disc and Drum Brake Systems.

Module 4: Brake System Service

- Explain the operation of the main components of combination brake systems.
- Explain the construction and operation of hard parts
- Explain the construction and operation of valves

Module 5: Introduction to Electricity

- Explain how electricity moves through a simple circuit.
- Identify basic electrical quantities (voltage, current, and resistance. Identify basic electrical components and symbols.
- Explain how to select and operate common electrical measuring tools (multimeter, test light, etc.) safely.
- Explain how to measure voltage, current, and resistance with a test equipment correctly and safely.

Module 6: Electrical Circuits - Series Circuits

- Identify the components of a series circuit.

- Explain how to calculate total resistance, current, and voltage drops in a series circuit using Ohm's Law.
- Identify the four circuit defects common in series circuit.
- Explain how the circuit defects affect toyal resistance,amerage and voltages drops.

MODULE 7: Electrical Circuits - Parallel Circuits

- Identify the components of a parallel circuit.
- Explain how to calculate total resistance, current, and voltage drops in a series circuit using Ohm's Law.
- Identify the four circuit defects common in series circuit.
- Explain how the circuit defects affect toyal resistance,amperage and voltages drops.

DETAILED COURSE CONTENT, TOPICS AND SEQUENCING

Week	Module	Readings	Assessment
1	Introduction **Module 1**: Basic Fasteners, Hand Tools and Linear Measuring tools.	Module 1: Basic Fasteners, Hand Tools and Linear Measuring tools.	**Quiz 1**
2	**Module 1**: Review 1st attempt on Quiz 1, Second attempt will open		- Hand Tool/ Measuring tool Projects
3	**Module 2**: Measuring Tools	-Module 2: Measuring Tools	**Quiz 2**
4	**Module 2**: Review 1st attempt on Quiz 2, Second attempt will open		Hand Tool/ Measuring tool Projects
5	**Module 3**: Brake System Fundamentals	Module 3: Brake System Fundamentals	**Quiz 3**
6	**Module 3**:		Hydraulic Disc & Drum Systems Service
7	**Module 4**: Brake System Service	Module 4: Brake System Service	**Quiz 4** Review quiz 1-4
8	**Module 4**: Review 1st attempt on Quiz 4, Second attempt will open		Hydraulic Disc & Drum Systems Service
9	**Module 5**: Introduction to Electricity	Module 5: Introduction to Electricity	**Quiz 5**
10	**Module 5**: Review 1st attempt on Quiz 5, Second attempt will open		Introduction to Electrical Introduction to test equipment Series Circuits work Sheets
11	**Module 6**: Electrical Circuits - Series Circuits	Electrical Circuits - Series Circuits	**Quiz 6**
12	**Module 6**: Review 1st attempt on Quiz 6, Second attempt will open		Series Circuits
13	**Module 7**: Electrical Circuits - Parallel Circuits		**Quiz 7**
14	**Module 7**: Review 1st attempt on Quiz 7, Second attempt will open		Parallel Circuits
15	**Review** Modules 5-7 for exam		Quiz 8: Review Quiz
16	**Exam** Module 5-7		Finish up shop Projects

INSTRUCTIONAL TECHNIQUES

A variety of learning methods will be employed during the course including:

- Lectures & multimedia resources
- Readings from textbook(s)
- Online resources such as webpages and videos
- Participation from students
- Shop/Lab activities

GRADE ASSESSMENT

Heavy Equipment Tech.	
Quizzes	15%
Lab Work	12%
Lab Shop Skills	13%
Exam(s)	10%
Sub-total	**50%**

Automotive Service Tech.	
Quizzes	15%
Lab work	12%
Lab shop Skills	13%
Exam(s)	10%
Sub-total	**50%**

Weighting may vary depending on student progress through course materials.

DATES OF MAJOR ASSESSMENTS

- Students should expect weekly theory quizzes, which must be completed successfully prior to participating in the corresponding lab.
- Students should expect to complete theory and/or shop tests at the end of each module/unit.
- Lab projects/task must be completed by the end of the corresponding lab time.
- A culminating exam should be expected at the end of each trade period. Exams may be written, practical (shop/lab), or a combination of the two.

FINAL EXAMS

There is no final exam set for this course by the Registrar's Office.

LATE ASSIGNMENTS/MISSED EXAM POLICY

All assessments must be completed by the assigned due date and time. If you fail to do so you will earn a grade of zero. Exemptions from this will be granted only for the reasons outlined below, as found in MHC Academic Calendar. Unless there are extenuating circumstances, notification must be made to the instructor prior to the due date/time.

- bereavement
- personal illness or injury
- religious observances*
- domestic affliction
- disability

* An assessment that is due on the date of a religious observance may be submitted early. Students will have received advance notice of this due date and should plan accordingly.

If you are a student with a disability and have been approved for accommodation through our Disabilities Services office, you must notify the instructor by email one week before the final exam if you want to use your accommodations. Failure to do this can result in the accommodation being denied.

ACADEMIC DISHONESTY

Plagiarism and cheating are serious offences and may be punished by failure on exam, paper or project, failure in course, and / or expulsion from the course.

COMMON GRADING SCHEME

Percent	Letter Grade	GPA
93-100	A+	4.0
86-92	A	4.0
80-85	A-	3.7
76-79	B+	3.3
72-75	B	3.0
68-71	B-	2.7
64-67	C+	2.3
60-63	C	2.0
56-59	C-	1.7
53-55	D+	1.3
50-52	D	1.0
0-49	F	0.0

ACCESSIBILITY STATEMENT

If you are a student that requires additional accommodation to support your learning and have been approved through our Accessibility Services office (Room B367), please contact your instructor prior to exams or any other forms of evaluation, if accommodation is desired.

MENTAL HEALTH STATEMENT

Medicine Hat College recognizes the importance of student mental health and wellbeing, and has many resources available for supporting students throughout their academic journey.

Services such as counselling, support groups, self-help modules dedicated to helping you manage things like anxiety, stress, depression, and relationships are accessible to students on the campus, as well as online. To connect with Mental Health and Counselling, visit the Student Advising Desk (across from Registration), by calling 403-529-3819.
Information is also available online at https://www.mhc.ab.ca/en/student-life/counselling-and-care.

In addition, the Student at Risk Support Team (SARS) is here to respond to concerns around mental health and physical well-being, security and academic issues, offering additional intervention and connecting students with appropriate resources on campus at: https://www.mhc.ab.ca/en/student-life/counselling-and-care/student-at-risk-support-team.

STUDENT RESPONSIBILITIES

Attendance, Health & Safety

Due to the nature of a trades lab environment, health and safety of everyone present - students and instructors - is of utmost importance. Students must be aware of the following:

- If a student does not have the proper PPE in class, they may be asked to leave, and will receive a zero grade for the lab activity for that class. This includes Steel toe boots, safety glasses, and coverall identified as required Learning Materials above.
- Attendance for the full duration of Shop/Labs is mandatory. Absence, late arrival, or early departure may result in not being permitted to participate in the rest of that lab class, or subsequent labs classes and is at the discretion of the instructor.
- Students are expected to adhere to all safe work practices and procedures. Failure to do so may result in the student being asked to leave, and will receive a zero grade for the lab activity for that class.
- Per Medicine Hat College Academic Calendar, there is zero tolerance for intoxication. Instructors have full discretion to remove from the lab or classroom any student they feel may be a hazard to themselves, the people around, the environment, or to the College tools/property; and the student will receive a zero grade for the lab activity for that class.

Communication

- All course material will be managed through Blackboard.
- Students are required to monitor their "@mymhc.ca" email accounts AND the "Announcements" section on Blackboard

Email

- Use of "@mymhc.ca" email address is required. Personal email addresses will not be used for correspondence with students.
- Use of proper subject line is required. Messages without a subject line will not be responded to.

Class Conduct

- Conduct yourself with consideration and respect for everyone you interact with. Disrespectful, unprofessional, or distracting behavior may result in being asked to leave the class.
- Use of social media, games, or other digital entertainment are not acceptable during class unless specified by the instructor.

Large Language Model (LLM)/ Generative Artificial Intelligence (Gen AI)

Unless the instructor says otherwise, do not use LLM/Gen AI tools or apps (such as ChatGPT, Midjourney, DALL-E, etc.) at any point and for any course assignments, evaluations, or assessments in this course. All work must be your own original work and follow the MHC Academic Integrity statement. Using unauthorized LLM/Gen AI tools or apps will be considered a violation of the MHC Academic Integrity statement.