

Area of Interest: Transportation

## Motive Power Technician

Ontario College Diploma

Program Code: 0557A04FWO

42 Weeks

Ottawa Campus

### Our Program

**Gain automotive technical expertise fast, in this condensed program.**

The two-year Motive Power Technician Ontario College Diploma program, delivered in a compressed format over 42 weeks, provides you with the skill-set to find an entry-level position in the transportation service industry.

Through a series of classroom-based courses and extensive practical labs, you will learn about a vehicle, including:

- chassis and drivelines
- fuel systems
- electrical systems
- internal combustion engines

Begin by learning the operational principles of systems used on vehicles, with hands-on projects to reinforce your knowledge. As you progress in the program, you focus on the advancement of technical fundamentals, advanced diagnostics, and troubleshooting procedures. You also study mathematics and related sciences, ethics, communications and marketing.

Algonquin College delivers this program in its state-of-the-art Transportation Technology Centre that is outfitted with modern equipment, allowing you to learn using the full range of advanced technology used in today's motive industry.

Graduates from the program are prepared to enter the workforce immediately. You may find employment as an apprentice technician, a technical advisor, or a parts or service management trainee. You may also become an apprentice warranty claims processor, or a product salesperson in the field.

### SUCCESS FACTORS

This program is well-suited for students who:

- Enjoy a hands-on approach to learning about the automotive industry.
- Have strong observational and analytical skills.
- Are team-oriented and like to work with others.

### Employment

Graduates may find employment as apprentice technicians, technical advisors, parts or service management trainees, warranty claims processors and product salespeople in the automotive field. A wide range of employment opportunities may exist, from small garages to large automotive dealerships.

### Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. Analyze, diagnose, and solve various motive power system problems by using problem-solving and critical thinking skills and strategies and by applying fundamental knowledge of motor vehicle operation, components, and their interrelationships.
2. Diagnose and repair climate control systems in compliance with manufacturers` recommendations.
3. Diagnose and repair engine systems in compliance with manufacturers` recommendations.
4. Diagnose and repair electrical, electronic, personal safety, and emission components and systems in compliance with manufacturers` recommendations.
5. Diagnose and repair drive train components and systems in compliance with manufacturers` recommendations.
6. Diagnose and repair suspension, steering, and brake components and systems in compliance with manufacturers` recommendations.
7. Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices.
8. Select and use a variety of troubleshooting techniques and test equipment to assess electronic circuits, vehicle systems, and subsystems.
9. Apply knowledge of hydraulics and pneumatics to the testing and analysis of motive power systems and subsystems.
10. Communicate information effectively, credibly, and accurately by producing supporting documentation to appropriate standards.
11. Use information technology and computer skills to support work in a motive power environment.
12. Prepare, support, maintain, and communicate data from log, record, and documentation systems.
13. Apply business practices, project management skills, and communication skills to improve customer service.
14. Assist in quality-control and quality-assurance programs and procedures.
15. Develop and use personal and professional strategies and plans to improve professional growth, job performance, and work relationships.
16. Complete all assigned work in compliance with occupational, health, safety, and environmental law; established policies and procedures; codes and regulations; and in accordance with ethical principles.
17. Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

### Program of Study

Level: 01	Courses	Hours
MAT8520	Mathematics and Related Science I	56.0
MGT8100	Career and College Success Skills	42.0
MVM8402	Chassis and Drivelines I	112.0
MVM8403	Fuel and Electrical Systems I	98.0
MVM8409	Applied Workplace Practices	70.0

MVM8463	Internal Combustion Engines I	56.0
<b>Level: 02</b>	<b>Courses</b>	<b>Hours</b>
ENL1813T	Communications I	42.0
MAT8521	Mathematics and Related Science II	56.0
MVM8404	Chassis and Drivelines II	135.0
MVM8435	Fuel and Electrical Systems II	98.0
MVM8436	Internal Combustion Engines II	56.0
<b>Choose one from equivalencies:</b>	<b>Courses</b>	<b>Hours</b>
GED0557	General Education Elective	42.0
<b>Level: 03</b>	<b>Courses</b>	<b>Hours</b>
ENL2003	Communications II for Technicians	42.0
MKT2230	Introduction to Marketing	42.0
MVM8405	Chassis and Drivelines III	112.0
MVM8406	Fuel and Electrical Systems III	112.0
MVM8407	Internal Combustion Engines III	56.0
MVM8810	Automotive Technology - Driving Change in Manufacturing	42.0
WEL9107	Introduction to Fuel Gas and Electrical Welding	42.0

## Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at <https://www.algonquincollege.com/fee-estimator> .

Further information on fees can be found by visiting the Registrar's Office website at <https://www.algonquincollege.com/ro> .

Fees are subject to change.

Additional program related expenses include:

- Books and supplies cost approximately \$400 per term and can be purchased from the campus store. For more information visit <https://www.algonquincollege.com/coursematerials> .
- Students are required to supply their own safety boots and safety glasses. (All students are responsible to supply their own CSA-approved leather steel toe work boots. Any other types of footwear are not acceptable).

## Admission Requirements for the 2024/2025 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR
- Academic and Career Entrance (ACE) certificate; OR

- General Educational Development (GED) certificate; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of \$50 (subject to change) will be charged.

**Program Eligibility**

- English, Grade 12 (ENG4C or equivalent).
- Mathematics, Grade 12 (MAP4C or equivalent).
- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).
- IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT) Overall 80, with a minimum of 20 in each component: Reading 20; Listening 20; Speaking 20; Writing 20; OR Duolingo English Test (DET) Overall 110, minimum of 110 in Literacy and no score below 95.

Not sure if you meet all of the requirements? Academic Upgrading may be able to help with that: <https://www.algonquincollege.com/access/> .

Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

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**Application Information**

**MOTIVE POWER TECHNICIAN**  
**Program Code 0557A04FWO**

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca  
60 Corporate Court  
Guelph, Ontario N1G 5J3  
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at <http://www.ontariocolleges.ca/>.

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information:  
<https://algonquincollege.force.com/myACint/>.

For further information on the admissions process, contact:

Registrar`s Office  
Algonquin College  
1385 Woodroffe Ave  
Ottawa, ON K2G 1V8  
Telephone: 613-727-0002  
Toll-free: 1-800-565-4723  
TTY: 613-727-7766  
Fax: 613-727-7632  
Contact: <https://www.algonquincollege.com/ro>

**Additional Information**

A passing grade in Level 1 MVM8402, MVM8403, MVM8409, and MVM8463 is 60%. A student who does not achieve 60% in these courses will not progress to the next level.

A passing grade in Level 2 MVM8404, MVM8435, and MVM8436 is 60%. A student who does not achieve 60% in these courses will not progress to the next level.  
Graduates of the Motive Power Technician program are eligible for exemption from Level 1 and 2 automotive apprenticeship.

**Contact Information****Program Coordinator(s)**

- Jason Glennon, <mailto:glennoj@algonquincollege.com>, 613-727-4723, ext. 6515

**Course Descriptions****ENL1813T Communications I**

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none  
Corerequisite(s):none

**ENL2003 Communications II for Technicians**

Communicating effectively in the workplace is a key component of career advancement and essential skills development. The ability to read, understand, reframe and deliver technical information to varied audiences is critical in a competitive marketplace. Students are exposed to a variety of common communication challenges related to working in their field of study. To meet these challenges, students are required to do basic research and data gathering, to summarize and reframe written, oral and visual information and to present their findings to a defined audience in an appropriate medium or media.

Prerequisite(s): ENL1813T

Corerequisite(s):none

### **GED0557 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none

Corerequisite(s):none

### **MAT8520 Mathematics and Related Science I**

Diagnosis and repair in the automotive trade requires familiarity with mathematical concepts and calculations. Students solve problems using basic operations with integers, decimals, and fractions. They carry out conversions within and between the SI and US Customary systems. Learners investigate geometric figures and angles. They use percent, ratio, proportion, and interest calculations to prepare repair estimates. Through analysis and execution students prepare to utilize mathematics in the automotive industry.

Prerequisite(s): none

Corerequisite(s):none

### **MAT8521 Mathematics and Related Science II**

The automotive trade has a long and rich history based on many scientific principles. Students develop the skills to calculate engine and transmission measurements and specifications. They use equations to determine force and pressure in hydraulic systems. Learners solve basic problems related to circuits, kinematics, and dynamics. Through analysis, application, and discussion students become familiar with the relevance of science in the automotive industry.

Prerequisite(s): MAT8520

Corerequisite(s):none

### **MGT8100 Career and College Success Skills**

To succeed at college, in the workforce, and in the community, we must adapt to changing environments, manage our time effectively, study efficiently, think independently and make difficult decisions. At the same time, we are often required to collaborate and cooperate with others, make use of available resources and services, cope with pressure and take responsibility for our learning and actions. Through discussions, assignments, and group work, students develop and apply these skills in a supportive and collaborative learning environment.

Prerequisite(s): none

Corerequisite(s):none

### **MKT2230 Introduction to Marketing**

Students gain basic marketing skills and concepts. While an overview of the entire marketing process is provided, emphasis is on the consumer market. The acquisition of skills and attitudes essential to promoting customer satisfaction through positive perspectives is also emphasized.

Prerequisite(s): none

Corerequisite(s):none

**MVM8402 Chassis and Drivelines I**

Students are introduced to the driveline and suspension, steering and braking systems of motor vehicles. Students perform minor service operations under the supervision of a certified technician.

Prerequisite(s): none

Corerequisite(s):MVM8403 and MVM8409 and MVM8463

**MVM8403 Fuel and Electrical Systems I**

Students learn the principles of electricity, electronics and fuel systems as used in modern automobiles. Students study DC circuitry, fuel principles and fuel delivery systems. Students identify fuel and electrical systems and their components. Students complete minor repairs and adjustments under the supervision of a certified technician.

Prerequisite(s): none

Corerequisite(s):MVM8402 and MVM8409 and MVM8463

**MVM8404 Chassis and Drivelines II**

Students study automotive brake, steering and suspension systems servicing procedures. Course includes fault-finding and an introduction to air conditioning, automatic transmissions and alignment.

Prerequisite(s): MVM8402

Corerequisite(s):MVM8435 and MVM8436

**MVM8405 Chassis and Drivelines III**

Students diagnose faults with the brake, suspension and air-conditioning systems. They also expand their knowledge of automatic transmission systems and are introduced to the operation, and servicing of anti-lock brake and traction control systems.

Prerequisite(s): MVM8404

Corerequisite(s):MVM8406 and MVM8407

**MVM8406 Fuel and Electrical Systems III**

Students expand their knowledge base and improve their diagnostic skills in computerized engine management and selected chassis electrical/electronic systems. Topics covered include ignition, gasoline fuel injection and emission control. Students also study topics, such as supplemental inflatable restraint, power accessories and electronic options.

Prerequisite(s): MVM8435

Corerequisite(s):MVM8405 and MVM8407

**MVM8407 Internal Combustion Engines III**

Students gain the practical skills and theoretical knowledge to conduct performance testing and carry out repairs to valve trains of internal combustion engines. Topics include compression testing, cooling service, removal and installation of cylinder heads, camshaft and valve train components.

Prerequisite(s): MVM8436

Corerequisite(s):MVM8405 and MVM8406

**MVM8409 Applied Workplace Practices**

Students study Workplace Hazardous Materials Information System (WHMIS) and safe work practices. Information on procedures related to fasteners, bearings, seals and sealants are covered. Students also learn to apply electronic processing of client information databases and technical

information retrieval situation as experienced in a transportation service environment.

Prerequisite(s): none

Corerequisite(s):MVM8402 and MVM8403 and MVM8463

### **MVM8435 Fuel and Electrical Systems II**

Students enhance their skills in electrical and electronics diagnosis and repair and are introduced to internal combustion engine fuels used in modern automobiles. Included is the study of construction, operation, and diagnostic routine used in assessment of starter systems and charging systems. Other topics covered are fuel injected fuel supply systems, engine management and ignition systems.

Prerequisite(s): MVM8403

Corerequisite(s):MVM8404 and MVM8436

### **MVM8436 Internal Combustion Engines II**

Students gain practical skills and theoretical knowledge to conduct inspections and perform service to cylinder blocks, rotating shafts and bearings, connecting rods, and piston assemblies, as well as cam drives and lash adjusters.

Prerequisite(s): MVM8463

Corerequisite(s):MVM8404 and MVM8435

### **MVM8463 Internal Combustion Engines I**

The construction and operating principles of the internal combustion engine are introduced. Students study 4-stroke and 2-stroke cycles as applied to diesel and gasoline engines and minor service of lubrication and cooling systems. Students perform minor service operations related to the lubrication and cooling systems of internal combustion engines under the supervision of a certified technician.

Prerequisite(s): none

Corerequisite(s):MVM8402 and MVM8403 and MVM8409

### **MVM8810 Automotive Technology - Driving Change in Manufacturing**

Developments in automotive technology and manufacturing processes have driven changes across the economy. From the assembly line to global positioning systems, automotive companies have led the way in the application of new technologies. Through a combination of activities, assignments, discussions and tests, students explore historical and contemporary automotive manufacturing processes in addition to innovations in car design and production.

Prerequisite(s): none

Corerequisite(s):none

### **WEL9107 Introduction to Fuel Gas and Electrical Welding**

Welding is a skill essential to a variety of professions. Students develop competent welding skills at a basic level using oxyacetylene equipment, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding, (GMAW) and Gas Tungsten Arc Welding (GTAW). Students are provided with instructions on the safety, proper setup and operation of equipment. Students learn basic principles of flame types and temperatures, metal preparation, gas selection and electrode classification.

Prerequisite(s): none

Corerequisite(s):none