

Area of Interest: Transportation

## Motive Power Fundamentals - Automotive Service Apprenticeship

Ontario College Certificate

Program Code: 0529S01FWO

24 Weeks

Ottawa Campus

### Our Program

#### **Become a journeyperson in the Automotive Service industry.**

The Motive Power Fundamentals - Automotive Service Apprenticeship Ontario College Certificate program is designed for registered apprentices who will be invited to register by the Ministry of Labour, Training and Skills Development (MLTSD).

Motive Power Fundamentals - Automotive Service Apprenticeship is a compulsory trade in Ontario. A Certificate of Qualification is required. To work outside of Ontario, a Red Seal Endorsement (RSE) is required.

If you are considering a future as an automotive service technician or a mechanic, you can find a career in independent garages, auto repair facilities, fleet servicing or automobile dealerships. You may also be able to find employment with the government, vehicle salvage facilities and insurance companies.

Applicants to the Motive Power Fundamentals - Automotive Service Apprenticeship program must:

- be currently employed in the trade
- be formally registered as apprentices with the Ministry of Labour, Training and Skills Development
- have a valid Offer of Classroom Training from the Ministry of Labour, Training and Skills Development that includes your Ministry Client ID and approved Class Number

To learn more about apprenticeships, visit <http://ontario.ca/page/skilled-trades> for detailed information.

#### **For Registered Apprentices:**

This program fulfills the in-class requirements for your apprenticeship. It is divided into three levels (Beginner, Intermediate, Advanced) where you alternate between going to class for 8 weeks and honing your skills through working in the field for 8-12 months.

During your labs, you learn about:

- electrical systems
- air conditioning systems
- drivelines
- fuel systems

All faculty are industry professionals who will teach you the latest trends in technology, engine mechanicals and power trains.

At the end of this program, you qualify to write the Red Seal Endorsement (RSE) exam, which is recognized across Canada.

## 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.
- Enjoy working as a member of a team.

## Employment

Graduates may be employed as apprentice technicians in the automotive service trade. Opportunities may exist in small garages, automobile dealerships, equipment supply firms and government.

## Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Identify basic motive power system problems by using critical thinking skills and strategies and by applying fundamental knowledge of motor vehicle operation, components, and their interrelationships.
- Identify, inspect, and test basic engine components and systems in compliance with manufacturers' recommendations.
- Identify, inspect, and test basic electrical, electronic, and emission components and systems in compliance with manufacturers' recommendations.
- Identify, inspect, and test basic drive train components and systems in compliance with manufacturers' recommendations.
- Identify, inspect, and test basic suspension, steering, and brake components and systems in compliance with manufacturers' recommendations.
- Disassemble and assemble components to required specifications by applying workshop skills and knowledge of basic shop practices.
- Use a variety of test equipment to assess basic electronic circuits, vehicle systems, and subsystems.
- Apply basic knowledge of hydraulics and pneumatics to the testing and inspection of basic motive power systems and subsystems.
- Communicate information effectively, credibly, and accurately by producing supporting documentation to appropriate standards.
- Use information technology and computer skills to access data concerning repair procedures and manufacturers' updates.
- Prepare logs, records, and documentation to appropriate standards.
- Apply business practices and communication skills to improve customer service.
- Develop and use personal and professional strategies and plans to improve professional growth, job performance, and work relationships.
- 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.
- Identify, inspect and test supplementary restraint systems according to manufacturers' service procedures.
- Identify, inspect and test hybrid vehicle systems according to manufacturers' service procedures.

## Program of Study

Level: 01	Courses	Hours
AST8801	Work Practices	32.0
AST8803	Electrical, Electronics and Emission Systems I	96.0
AST8804	Drive Train Systems I	32.0
AST8806	Engine Systems I	40.0
AST8807	Suspension, Steering and Brake Systems I	40.0
Level: 02	Courses	Hours
AST8310	Air Conditioning Systems	32.0
AST8312	Electrical, Electronics and Emission Systems II	96.0
AST8313	Drive Train Systems II	32.0
AST8314	Suspension, Steering and Brake Systems II	40.0
AST8316	Engine Systems II	40.0
Level: 03	Courses	Hours
AST8320	Work Practices III	32.0
AST8324	Suspension, Steering and Brake Systems III	40.0
AST8325	Electrical, Electronics and Emission Systems III	96.0
AST8326	Engine Systems III	40.0
AST8327	Drive Train Systems III	32.0

## Fees for the 2023/2024 Academic Year

Tuition Fees: \$400 per level.

Incidental Fee: \$150 per level.

Information Technology Fee: \$43.86 per level.

Algonquin College recommends that students purchase their textbooks. Students are responsible for supplies, including textbooks, safety footwear, safety glasses, and parking and locker fees, if applicable.

## Admission Requirements for the 2024/2025 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent; OR
- Mature Student status (19 years of age or older and without a high school diploma at the start of the program).

### Program Eligibility

- Prospective students must be registered apprentices with the Ministry of Labour, Training and Skills Development and must be a member in good standing with Skilled Trades Ontario (STO).
- Eligibility is determined by the Ministry of Labour, Training and Skills Development.

## **Admission Requirements for 2023/2024 Academic Year**

### **College Eligibility**

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### **Program Eligibility**

- Prospective students must be registered apprentices with the Ministry of Labour, Training and Skills Development and must be a member in good standing with Skilled Trades Ontario (STO).
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## **Application Information**

### **MOTIVE POWER FUNDAMENTALS - AUTOMOTIVE SERVICE APPRENTICESHIP** **Program Code 0529S01FWO**

Registration for Apprenticeship programs takes place through the Ministry of Labour, Training, and Skills Development.

For further information, contact:

Ministry of Labour, Training, and Skills Development  
347 Preston Street 3rd Floor, Suite 310  
Ottawa, ON K1S 3H8

<http://www.ontario.ca/page/start-apprenticeship>

Telephone: 613-731-7100

Toll-free: 1-877-221-1220

## **Additional Information**

For our post-secondary Automotive Program, please check our website for the Motive Power Technician Program.

## **Contact Information**

### **Program Coordinator(s)**

- Martin Restoule, <mailto:restoum@algonquincollege.com> , 613-727-4723, ext. 5153
- Randy Scott, <mailto:scrotr@algonquincollege.com> , 613-727-4723, ext. 7763

## **Course Descriptions**

### **AST8310 Air Conditioning Systems**

Apprentices review the theory and applications of heating and ventilation systems, air conditioning fundamentals, and repairer's rights and responsibilities.

Prerequisite(s): AST8801

Corerequisite(s): AST8312 and AST8313 and AST8314 and AST8316

### **AST8312 Electrical, Electronics and Emission Systems II**

Apprentices review the theory and applications of electrical circuit calculations, diagnostic test equipment, cranking systems and control circuits, cranking system diagnostics and testing, electronic fundamentals, electronic ignition fundamentals, charging systems and control circuits, gasoline fuel injection fundamentals and emission control systems.

Prerequisite(s): AST8803

Corerequisite(s): AST8310 and AST8313 and AST8314 and AST8316

### **AST8313 Drive Train Systems II**

Apprentices review the theory and applications of front and rear wheel drive drivelines, transfer cases, torque converter assemblies, automatic transmission, and transaxle fundamentals and construction.

Prerequisite(s): AST8804

Corerequisite(s): AST8310 and AST8312 and AST8314 and AST8316

### **AST8314 Suspension, Steering and Brake Systems II**

Apprentices review the theory and applications of suspension system fundamentals and servicing, manual and power assisted steering systems, alignment fundamentals, alignment equipment and hydraulic brake servicing.

Prerequisite(s): AST8807

Corerequisite(s): AST8310 and AST8312 and AST8313 and AST8316

### **AST8316 Engine Systems II**

Apprentices review the theory and applications of valve trains and camshafts, cylinder heads, turbochargers and superchargers.

Prerequisite(s): AST8806

Corerequisite(s): AST8310 and AST8312 and AST8313 and AST8314

### **AST8320 Work Practices III**

Apprentices review the theory, applications and diagnosis of air conditioning systems, and body and trim.

Prerequisite(s): none

Corerequisite(s): none

### **AST8324 Suspension, Steering and Brake Systems III**

Apprentices review the theory, application and diagnosis of power assisted brakes, anti-lock brakes, electronic braking, tire pressure monitoring systems, electronic suspension systems, vehicle pre-alignment and alignment.

Prerequisite(s): AST8314

Corerequisite(s): AST8320 and AST8325 and AST8326 and AST8327

### **AST8325 Electrical, Electronics and Emission Systems III**

Apprentices review the theory, application and diagnosis of computer fundamentals, supplemental restraint systems, distributorless ignition systems, computer controlled charging systems, power accessories and electrical options, gasoline fuel injection, diesel electronic fuel injection fundamentals, emissions controls and hybrid systems.

Prerequisite(s): AST8312

Corerequisite(s): AST8320 and AST8324 and AST8326 and AST8327

**AST8326 Engine Systems III**

Apprentices review the theory, application and diagnosis of engine cooling systems, accessory drive belts and pulleys, lubrication systems, component failure analysis, and engine replacement and start-up preparation.

Prerequisite(s): AST8316

Corerequisite(s): AST8320 and AST8324 and AST8325 and AST8327

**AST8327 Drive Train Systems III**

Apprentices review the theory, application and diagnosis of automatic transmission and transaxle pumps hydraulic systems and operations, electronic controls, transfer cases, four-wheel and all-wheel drive systems, alternate and hybrid drivelines.

Prerequisite(s): AST8313

Corerequisite(s): AST8320 and AST8324 and AST8325 and AST8326

**AST8801 Work Practices**

Apprentices review the theory and applications of fasteners and tightening procedures, bearings, seals and sealants, precision measuring tools, oxyacetylene heating and cutting, hoists and lifting equipment and applied computer skills.

Prerequisite(s): none

Corerequisite(s): AST8803 and AST8804 and AST8806 and AST8807

**AST8803 Electrical, Electronics and Emission Systems I**

Apprentices review the theory and applications of electrical fundamentals, electrical/electronic diagnostic test equipment, battery fundamentals, electrical circuit calculations, applied electrical schematics, circuit repair and protection devices, electromagnetic device fundamentals, electronic fundamentals, fuel system fundamentals, intake and exhaust systems, emission control systems and hybrid systems.

Prerequisite(s): none

Corerequisite(s): AST8801 and AST8804 and AST8806 and AST8807

**AST8804 Drive Train Systems I**

Apprentices review the theory and applications of clutches and flywheel assemblies, basic gear theory, manual transmission and transaxle fundamentals, manual transmission, and transaxle service and diagnostics.

Prerequisite(s): none

Corerequisite(s): AST8801 and AST8803 and AST8806 and AST8807

**AST8806 Engine Systems I**

Apprentices review the theory and applications of engine fundamentals, cylinder blocks and crankshaft assemblies.

Prerequisite(s): none

Corerequisite(s): AST8801 and AST8803 and AST8804 and AST8807

**AST8807 Suspension, Steering and Brake Systems I**

Apprentices review the theory and applications of suspension systems, frames, steering systems, tires, rims and hydraulic brake fundamentals.

Prerequisite(s): none

Corerequisite(s): AST8801 and AST8803 and AST8804 and AST8806

