

# AUTOMOTIVE TECHNOLOGY

Associate in Applied Science Degree | Career Program  
Department of Engineering, Physics and Technology

## Program Description

The Automotive Technology curriculum, the only one of its kind in the City University of New York, prepares the student for a career as an automotive technician. This curriculum develops understanding of operational principles, service sequences and diagnostic techniques for the automobile. Upon completion of this curriculum, the graduate is prepared for entry-level positions in various areas of the automotive industry dealing with development, testing, diagnosis and service of mechanical, hydraulic, electrical and thermodynamic automotive systems.

Automotive Technology graduates are employed in a variety of automotive-oriented positions including test technician, diagnostician, equipment sales and service, independent business administrator, dealership service manager, service writer, engine machinist, fuel injection, automatic transmission and engine management specialist, as well as general service technician. Further training and education can lead to careers in technical education, engineering, insurance appraisal, accident investigation and other specialties. The program articulates with SUNY Empire State College. See the Transfer Planning web site for more information.

The Automotive Technology associate degree program is accredited by the ASE Education Foundation (<http://www.aseeducation.org/>).

## Learning Outcomes

Upon successful completion of the Automotive Technology program requirements, students will be able to:

1. Demonstrate proper safety procedures, accident prevention and shop procedures in an active garage.
2. Demonstrate understanding of fundamental internal combustion engines and be able to perform basic mechanical diagnosis and repair.
3. Calculate hydraulic pressures within a drum and disc brake system.
4. Demonstrate proficiency in the use of computer diagnostic equipment, such as proper use of a scantool and oscilloscope.
5. Calculate gear ratios and demonstrate understanding of torque multiplication in transmissions.
6. Explain how alignment angles can affect a vehicle's handling performance and tire wear.

7. Demonstrate a working knowledge of manifold gauge set readings and how they relate to air conditioning performance.
8. Use wiring schematics and electrical test equipment to diagnose electrical problems.
9. Diagnose automatic transmission issues including torque converter operation.

Upon successful completion of the Automotive Technology Option requirements, students will be able to:

1. Recognize different configurations of hybrid vehicles, and how to interact with them safely.
2. Demonstrate emissions diagnostics by utilizing knowledge of 5 gas analyzation, stoichiometry, and interaction with the OBD2 system.

Upon successful completion of the Diesel Technology Option requirements, students will be able to:

1. Demonstrate understanding of the environmental issues concerning diesel fuel emissions.
2. Demonstrate the understanding of basic fuel delivery of diesel engines.
3. Locate and identify the components of an air brake system.

## AUTOMOTIVE TECHNOLOGY CURRICULUM (PATHWAYS)

60 Credits required for AAS Degree

Curriculum Coordinator: Mr. Clement Drummond

### Required Core

#### A. English Composition

- ENG 110 Fundamentals of Composition and Rhetoric  
OR ENG 111 Composition and Rhetoric I (3 Credits)
- ENG 112 Composition and Rhetoric II (3 Credits)

#### C. Life and Physical Sciences

- CHM 11 General Chemistry I OR  
CHM 17 Fundamentals of General Chemistry I  
(4 Credits)

### Flexible Core

#### A. World Cultures and Global Issues

- HIS 10 History of the Modern World OR  
HIS 11 Introduction to the Modern World (3 Credits)

#### D. Individual and Society

- **COMM 11** Fundamentals of Interpersonal Communication (3 Credits)

#### E. Scientific World

- **PHY 11** College Physics I (4 Credits)

#### B, C. 3 credits of Humanities Restricted Electives<sup>1</sup>

**SUBTOTAL 23**

#### Major Requirements

- **ACS 10** Introduction to Automotive Technology (1 Credits)
- **ACS 11** Engine Repair (4 Credits)
- **ACS 12** Brake Systems (3 Credits)
- **ACS 23** Heating and Air-Conditioning (3 Credits)
- **ACS 24** Electrical Systems (3 Credits)
- **ACS 25** Automatic/Manual Transmission and Drive Trains *OR*  
**ACS 38** Advanced Vehicle Diagnostics (4 Credits)
- **ACS 35** Alternate Fuel Systems *OR*  
**ACS 36** Hybrid / Electric Vehicles (3 Credits)

- **ART 10** Art Survey *OR*  
**MUS 10** Music Survey *OR*  
**ACS 50** Automotive Technology Internship (1 Credit)
- **ELC 15** Computer Applications in Technology (2 Credits)
- **MTH 13** Trigonometry and College Algebra (3 Credits)
- **PEA** Physical Education Activity Course *OR*  
**WFA 10** Workplace First Aid (1 Credit)

#### Automotive Technology Option Requirements

- **ACS 13** Engine Performance (3 Credits)  
**ACS 45** Diesel Technology (3 Credits)
- **ACS 21** Steering and Suspension Systems (3 Credits)

#### Diesel Technology Option Requirements

- **ACS 45** Diesel Technology (3 Credits)
- **ACS 46** Diesel Engine Performance (3 Credits)
- **ACS 47** Air Brakes and Suspension (3 Credits)

**SUBTOTAL 37**

<sup>1</sup> Three credits of Humanities Restricted Electives must be selected to fulfill Pathways Flexible Core Areas B or C. In order to get the broadest college experience, it is advised that the Humanities elective be chosen from disciplines OTHER THAN COMM, MEST, or HIS.

