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 scan tool 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 Electric Vehicles Option requirements, students will be able to:

1. Use a working knowledge of safety regulations and procedures as they pertain to electric vehicles.
2. Identify the technology and components associated with ADAS (Advanced Driver Assistance Systems) and be proficient in their operation.
3. Demonstrate diagnostic techniques for both electric and autonomous vehicles.

AUTOMOTIVE TECHNOLOGY CURRICULUM (PATHWAYS)

60 Credits required for AAS Degree
Curriculum Coordinator: Clement Drummond

Required Core

A. English Composition

- **ENG 100** English Composition I: Integrated Reading and Writing OR **ENG 110** English Composition I: Fundamentals of Writing and Rhetoric *OR* **ENG 111** English Composition I: Writing and Rhetoric *OR* **ENG 112** English Composition II: Writing and Rhetoric *OR* **ENG 113** English Composition II: Writing about Literature *OR* **ENG 114** English Composition II: Writing about Fiction *OR* **ENG 115** English Composition II: Writing about Drama *OR* **ENG 116** English Composition II: Writing about Poetry (6 Credits)

B. Mathematical and Quantitative Reasoning

- **MTH 28** College Algebra and Elementary Trigonometry (3 Credits) *OR* **MTH 28.5** College Algebra and Elementary Trigonometry (Corequisite)

C. Life and Physical Sciences

- **CHM 11** General Chemistry I *OR* **CHM 17** Fundamentals of General Chemistry (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[1]

SUBTOTAL 26

Major Requirements

- ACS 10 Introduction to Automotive Technology (1 Credits)
- ACS 11 Engine Repair (4 Credits)
- ACS 12 Brake Systems (3 Credits)
- ACS 21 Steering and Suspension (3 credits)
- ACS 23 Heating and Air-Conditioning (3 Credits)
- ACS 24 Electrical Systems (3 Credits)
- 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)
- PEA Physical Education Activity Course *OR*
  WFA 10 Workplace First Aid (1 Credit)

Automotive Technology Option Requirements

- ACS 13 Engine Performance (3 credits)
- ACS 25 Automatic/Manual Transmissions and Drive Trains *OR* ACS 38 Advanced Vehicle Diagnostics (4 Credits)
- ACS 45 Diesel Technology (3 Credits)

Electric Vehicles Option Requirements

- ACS 55 Introduction to Electric Vehicles (3 Credits)
- ACS 56 Autonomous Vehicle Systems (3 Credits)
- ACS 57 Electric Vehicle Performance and Diagnosis (4 Credits)

SUBTOTAL 34

[1] 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.