

# Automotive Systems Technology

The Automotive Systems Technology curriculum prepares individuals for employment as Automotive Service Technicians. It provides an introduction to automotive careers and increases student awareness of the challenges associated with this fast and ever-changing field.

Classroom and lab experiences integrate technical and academic coursework. Emphasis is placed on theory, servicing and operation of brakes, electrical/electronic systems, engine performance, steering/suspension, automatic transmission/transaxles, engine repair, climate control, and manual drive trains.

Upon completion of this curriculum, students should be prepared to take the ASE exam and be ready for full-time employment in dealerships and repair shops in the automotive service industry.

For specific information about potential positions and wages in automotive systems employment, visit the Central Piedmont Career Coach website.

## Automotive Systems Technology (A60160) Degree Awarded

The Associate in Applied Science Degree - Automotive Systems Technology is awarded by the college upon completion of this program.

### Admissions

- A high school diploma or equivalent is required.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

### Program Accreditation

The BMW-ADP and GM-ASEP programs are Master Certified by the National Automotive Technician Foundation (NATEF) Automotive Service Excellence (A.S.E.).

### Program Manufacturer Partners

General Motors' Automotive Service Excellence Program (ASEP), and BMW (ADP) are options for this associate degree program. In addition, CPCC currently offers a Honda Professional Automotive Career Training (PACT) program certificate as an Express Service Technician. Contact the Public Service & Transportation Division Cooperative Education Coordinator at 704.330.4157 or the Transport Systems Technology Division at 704.330.2722 ext. 7331 for manufacturer program information.

Note: Students must furnish required hand tools and protective clothing, as well as textbooks. A list of these items can be obtained from an instructor or by contacting the Program Chair at 704.330.2722 ext. 7331.

### Contact Information

The Automotive Systems Technology program is in the Public Service & Transportation Division, which can be reached at 704.330.2722 ext. 7331.

#### General Education Requirements

ENG 111	Writing and Inquiry	3.0
Select 3 credits of the following:		3.0
COM 110	Introduction to Communication	

or COM 231 Public Speaking		
Select 3 credits of the following:		3.0
MAT 110	Mathematical Measurement and Literacy	
MAT 143	Quantitative Literacy	
MAT 152	Statistical Methods I	
MAT 171	Precalculus Algebra	
Select 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

#### Major Requirements

ACA 122	College Transfer Success	1.0
TRN 110	Introduction to Transport Technology	2.0
TRN 120	Basic Transportation Electricity	5.0
TRN 140	Transportation Climate Control	2.0
TRN 145	Advanced Transportation Electronics	3.0
AUT 141	Suspension & Steering Systems	3.0
AUT 151	Brake Systems	3.0
AUT 181	Engine Performance 1	3.0
AUT 183	Engine Performance 2	4.0
TRN 170	Pc Skills for Transportation	2.0
AUT 116	Engine Repair	3.0
AUT 163	Advanced Automotive Electricity	3.0
Select 2 credits from the following		2.0
ATT 115	Green Trans Safety and Service	
TRN 180	Basic Welding for Transportation	
Select 6 credits of the following		6.0
AUT 221	Automatic Transmissions/Transaxles	
AUT 231	Manual Transmissions/Transaxles/Drive Trains	
ATT 125	Hybrid-Electric Transportation	

#### Technical Electives

Select 9 credits of the following:		9.0
TRN 120A	Basic Transportation Electrical Lab	
TRN 140A	Transportation Climate Control Lab	

TRN 180A	Basic Welding for Transportation Lab	
AUT 113	Automotive Servicing I	
AUT 114	Safety and Emissions	
AUT 114A	Safety and Emissions Lab	
AUT 116A	Engine Repair Lab	
AUT 141A	Suspension & Steering Lab	
AUT 151A	Brakes Systems Lab	
AUT 213	Automotive Servicing 2	
AUT 221A	Automatic Transmissions/Transaxles Lab	
AUT 231A	Manual Transmissions/Transaxles/Drive Trains Lab	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	
WBL 132	Work-Based Learning III	
WBL 212	Work-Based Learning IV	
AUT 212	Auto Shop Management	
ATT 140	Emerging Transportation Technology	
AUT 281	Advanced Engine Performance	
Total Credits		66

## Automotive Systems Technology Diploma (D60160)

This diploma is also available for students enrolled in Career & College Promise.

### Diploma Awarded

A diploma in Automotive Systems Technology is awarded by the College upon completion of this program.

### Admissions

- Completion of a high school diploma or equivalent is required as the foundation of a career in this area.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

### Program Accreditation

This program is Master Certified by the National Automotive Technician Foundation (NATEF) Automotive Service Excellence (A.S.E.).

Note: Students must furnish required hand tools and protective clothing, as well as textbooks. A list of these items can be obtained from an instructor or program chair by contacting the program chair at 704.330.4183.

### Contact Information

The Automotive Systems Technology program is in the Transport Systems Technologies Division. For more information, call the program office at 704.330.4122 or the program chair at 704.330.4183.

Choose 42 hours from Major and Related Course Requirements listed below:

#### General Education Requirements

ENG 101	Applied Communications I	3.0
MAT 110	Mathematical Measurement and Literacy	3.0

#### Major Requirements

TRN 110	Introduction to Transport Technology	2.0
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TRN 120	Basic Transportation Electricity	5.0
TRN 140	Transportation Climate Control	2.0
AUT 141	Suspension & Steering Systems	3.0
AUT 151	Brake Systems	3.0
AUT 181	Engine Performance 1	3.0
TRN 140A	Transportation Climate Control Lab	2.0
TRN 170	Pc Skills for Transportation	2.0
AUT 116	Engine Repair	3.0
AUT 116A	Engine Repair Lab	1.0
AUT 151A	Brakes Systems Lab	1.0
AUT 183	Engine Performance 2	4.0
AUT 221	Automatic Transmissions/Transaxles	3.0
AUT 231	Manual Transmissions/Transaxles/Drive Trains	3.0

#### Technical Electives

Select 1 credit of the following:		1.0
AUT 113	Automotive Servicing I	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	
AUT 213	Automotive Servicing 2	
AUT 141A	Suspension & Steering Lab	
TRN 120A	Basic Transportation Electrical Lab	
Total Credits		44

## Automotive Systems Technology Certificates (C60160)

- Automotive Systems Technology Certificate Specialization in Vehicle Driveline Systems (C60160-10) (p. 2)
- Automotive Systems Technology Certificate Specialization in Brake and Alignment (C60160-11) (p. 2)
- Automotive Systems Technology Certificate Specialization in Electrical Vehicle Training (C60160-12) (p. 3)
- Automotive Systems Technology Certificate Specialization in Transportation Service and Repair (C60160-20) (p. 3)
- Automotive Systems Technology Certificate Specialization in Transportation Welding and Alternative Fuels (C60160-25) (p. 3)
- Automotive Systems Technology Certificate Specialization in Basic Hybrid Vehicle Technology (C60160-30) (p. 3)

### Automotive Systems Technology Certificate Specialization in Vehicle Driveline Systems (C60160-10)

#### Major Requirements

TRN 110	Introduction to Transport Technology	2.0
AUT 116	Engine Repair	3.0
AUT 221	Automatic Transmissions/Transaxles	3.0
AUT 221A	Automatic Transmissions/Transaxles Lab	1.0
AUT 231	Manual Transmissions/Transaxles/Drive Trains	3.0
Total Credits		12

### Automotive Systems Technology Certificate Specialization in Brake and Alignment (C60160-11)

#### Major Requirements

TRN 110	Introduction to Transport Technology	2.0
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TRN 120	Basic Transportation Electricity	5.0
AUT 141	Suspension & Steering Systems	3.0
AUT 151	Brake Systems	3.0
AUT 114	Safety and Emissions	2.0
AUT 141A	Suspension & Steering Lab	1.0
AUT 151A	Brakes Systems Lab	1.0
Total Credits		17

### Automotive Systems Technology Certificate Specialization in Electrical Vehicle Training (C60160-12)

#### Major Requirements

AUT 212	Auto Shop Management	3.0
AUT 281	Advanced Engine Performance	3.0
ATT 115	Green Trans Safety and Service	2.0
ATT 125	Hybrid-Electric Transportation	4.0
ATT 140	Emerging Transportation Technology	3.0
Total Credits		15

### Automotive Systems Technology Certificate Specialization in Transportation and Repair (C60160-20)

#### Major Requirement

TRN 110	Introduction to Transport Technology	
TRN 170	Pc Skills for Transportation	
TRN 120	Basic Transportation Electricity	
TRN 120A	Basic Transportation Electrical Lab	
TRN 140	Transportation Climate Control	
TRN 140A	Transportation Climate Control Lab	
Total Credits		14.0

### Automotive Systems Technology Certificate Specialization in Transportation Welding and Alternative Fuels (C60160-25)

#### Major Requirements

TRN 110	Introduction to Transport Technology	2.0
TRN 170	Pc Skills for Transportation	2.0
TRN 180	Basic Welding for Transportation	3.0
TRN 180A	Basic Welding for Transportation Lab	1.0
ATT 115	Green Trans Safety and Service	2.0
ATT 140	Emerging Transportation Technology	3.0
Total Credits		13

### Automotive Systems Technology Certificate Specialization in Basic Hybrid Vehicle Technology (C60160-30)

#### Major Requirements

TRN 110	Introduction to Transport Technology	2.0
TRN 120	Basic Transportation Electricity	5.0
TRN 120A	Basic Transportation Electrical Lab	1.0
TRN 170	Pc Skills for Transportation	2.0
AUT 113	Automotive Servicing I	2.0

ATT 115	Green Trans Safety and Service	2.0
Total Credits		14

The following is the suggested plan for when to take each course to complete the Associate in Applied Science degree, based on the program requirements of the 2022-2023 catalog. This is only a recommendation — you may take courses in another order upon consultation with your advisor. This plan is based on you starting with college-level math and English courses, starting your program in the fall, and attending full-time. You can also follow this sequence if you attend part-time. Speak with an advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details.

#### Automotive Systems Technology suggested course sequence