AUTOMOTIVE SERVICE TECHNOLOGY

Sylvania Campus
Automotive Metals Building (AM), Room 210
971-722-4130

www.pcc.edu/programs/auto-service/

CAREER AND PROGRAM DESCRIPTION

The automotive service technician maintains, diagnoses and repairs mechanical, hydraulic, fuel and electrical systems on modern automobiles and light-duty trucks. Automotive Service Technology graduates find jobs in independent repair shops, dealerships and fleet maintenance facilities. Some start their own businesses.

The PCC Automotive Service Technology Department provides flexible, career-oriented automotive repair education and training in an authentic and diverse environment. As a PCC Automotive student, you may prepare for any segment of the repair industry, including dealerships, fleets and independent repair shops. Partnerships between PCC and automotive repair businesses will allow you to learn in the classroom and on the job.

PCC Automotive provides comprehensive training to technicians already working in the field. See the Automotive Department chairperson to develop a personalized training plan.

DEGREES AND CERTIFICATES OFFERED

Associate of Applied Science Degree

Automotive Service Technology
Automotive Service Technology: Automotive Service Education Program Option *(Suspended)*

Two-Year Certificate

Automotive Service Technology

PREREQUISITES AND REQUIREMENTS

Applicants must take the placement test administered through test centers located at each campus. To begin the program, students must place into (RD 90 and WR 90) or (ESOL 260, 262, and 264) and into MTH 60 or higher-level math class. Students who place below MTH 60 must successfully complete MTH 20 and be ready for MTH 60 before registering for the automotive program. The AST Program accepts new students three times a year. New students must contact the PCC Automotive Department for advising and registration.

Students may select a certificate or degree program that meets their needs. The program consists of instructional modules of seventeen days, each module being an intensive course in a specialized area. At the completion of each module, students are assessed according to their success in meeting course outcomes. The automotive modules consist of lecture and hands-on laboratory work. Students will have additional costs for tools and equipment.

AUTOMOTIVE SERVICE TECHNOLOGY AAS DEGREE

Minimum 97 credits. Students must also meet Associate Degree Comprehensive Requirements which includes MTH 65 and WR 121 and also Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Automotive Service Technology Degree Credit Summary

AM	80
General Education	16
CG	1
Credit Total	97

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AM	100	Introduction to Automotive	4
AM	111	Engine Repair	4
AM	161	Electrical Systems I	4
CG	209	Job Finding Skills[1]	1
General Education			4

Second Term

AM	151	Undercar Systems I	4
AM	141	Undercar Systems II	4
AM	142	Undercar Systems III	4
General Education			4

Third Term

AM	162	Electrical Systems II	4
AM	163	Electrical Systems III	4
AM	171	Heating and Air Conditioning Systems	4
General Education			4

Fourth Term

AM	181	Engine Performance I	4
AM	182	Engine Performance II	4
AM	183	Engine Performance III	4
General Education			4

Fifth Term

AM	131	Drive Train Systems I	4
AM	121	Drive Train Systems II	4
AM	132	Drive Train Systems III	4

Sixth Term

AM	201	Auto Shop Lab I	4
AM	202	Auto Shop Lab II	4
AM	203	Auto Shop Lab III	4

Seventh Term

AM	280A	CE: Automotive Services	8

[1]Class must be completed before enrolling in cooperative education (AM 280A.)

AUTOMOTIVE SERVICE TECHNOLOGY TWO-YEAR CERTIFICATE

Minimum 81 credits. Students must meet certificate requirements. The Automotive Service Technology Certificate is a related certificate. All courses are contained in the Automotive Service Technology AAS Degree.

Automotive Service Technology Certificate Credit Summary

AM	80
CG	1
Credit Total	81

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AM	100	Introduction to Automotive	4
AM	111	Engine Repair	4
AM	161	Electrical Systems I	4
CG	209	Job Finding Skills[1]	1
Second Term			
AM	151	Undercar Systems I	4
AM	141	Undercar Systems II	4
AM	142	Undercar Systems III	4
Third Term			
AM	162	Electrical Systems II	4
AM	163	Electrical Systems III	4
AM	171	Heating and Air Conditioning Systems	4
Fourth Term			
AM	181	Engine Performance I	4
AM	182	Engine Performance II	4
AM	183	Engine Performance III	4
Fifth Term			
AM	131	Drive Train Systems I	4
AM	121	Drive Train Systems II	4
AM	132	Drive Train Systems III	4
Sixth Term			
AM	201	Auto Shop Lab I	4
AM	202	Auto Shop Lab II	4
AM	203	Auto Shop Lab III	4
Seventh Term			
AM	280A	CE: Automotive Service	8

[1]Class must be completed before enrolling in cooperative education (AM 280A.)

AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

The AAS degree in General Motors Automotive Service Education (ASEP) has been suspended. The Automotive Service Technology program will continue to be offered. For more information or availability of individual courses, please contact the department advisor at 971-722-4130 or visit the department website at **http://www.pcc.edu/programs/autoservice/.**

COURSE DESCRIPTIONS

AM 100 Introduction to Automotive Systems 4.00 Introduces automotive tools, fasteners, precision measurement, service information systems/manuals and shop procedures. Perform basic automotive service, inspection, and measuring procedures including the practical application of mathematics for the automotive trade. Audit available.

AM 101 Engine Repair I 4.00 Studies basic theory, design and operation of automotive engines. Engine components are covered in detail including purpose, inspection and repair. Disassemble and reassemble school owned engines to gain experience in hand tool use and proper engine repair and evaluation procedures. Compression and leakage tests are included. Prerequisite: AM 108. Audit available.

AM 102 Electrical Systems I 4.00 Covers electrical theory, schematic symbols, battery and starter theory, operation, diagnosis and repair. Audit available.

AM 103 Engine Performance I 4.00 Covers use of automotive scan tools, operation and testing electronic ignition systems, ignition secondary oscilloscope patterns, electronic advance, engine knock control systems, basic timing adjustment and distributor removal and replacement. Prerequisites: AM 108, 101, 102, 112. Audit available.

AM 104 Steering and Suspension Systems I 4.00 Covers basic principles of steering, suspension and wheel alignment for passenger cars and light duty trucks. Familiarization with tire construction, types and sizing. Practice disassembly and re-assembly of steering and suspension system components. Familiarization and practice in using computerized 4-wheel-alignment equipment and tire balancing machines. Prerequisites: AM 108 and 102. Audit available.

AM 105 Brake Systems I 4.00 Studies principles of automotive brake systems. Practice disassembly/assembly of system components using school owned equipment. Includes proper measuring and machining of brake drums and discs. Prerequisites: AM 108, 102. Audit available.

AM 106 Heat and Air Conditioning Systems 4.00 Covers theory, operation and repair of automotive heating and air conditioning systems. Work on approved customer automobiles. Includes testing and repair of electrical and vacuum circuits. Prerequisites: AM 108, AM 102, AM 101 and AM 112. Audit available.

AM 107 Manual Drive Train and Axles 4.00 Introduces various designs of manual transmissions and transaxles and to the driveline components of an automobile. Each component is covered in detail including purpose, application, operation, inspection, diagnosis and repair. Disassemble, inspect and assemble school owned units to obtain hands-on experience and familiarization. Prerequisite: AM 108. Audit available.

AM 108 Intro to Automotive Systems I 4.00 Orientation to PCC Automotive Service Technology program. Introduces automotive tools, fasteners, precision measurement, service manuals and shop procedures. Perform basic automotive service and inspection procedures. Includes the practical application of mathematics for the automotive trade. Audit available.

AM 111 Engine Repair 4.00 Introduces basic theory, design and operation of automotive engines. Engine components are covered in detail including purpose, inspection and repair. Disassemble and reassemble school owned engines to gain experience in hand tool use and proper engine repair and evaluation procedures. Compression and leakage tests are included. Audit available.

AM 112 Electrical II 4.00 Read schematics and work on charging systems and accessories. Prerequisites: AM 108, 102. Audit available.

AM 113 Engine Performance II 4.00 Study the causes of air pollution, the use of the five gas analyzer, air injection systems, catalytic converters, crankcase ventilation systems, evaporation control systems and federal and state emission control laws. Prerequisite: AM 108, AM 101, AM 102, AM 103 and AM 112. Audit available.

AM 114 Steering and Suspension Systems II 4.00 The capstone class in a 2-class sequence covering steering system service, suspension system service and 4-wheel alignment. Practice learned skills repairing real steering, suspension and wheel alignment problems. Jobs assigned by instructor, drawing from a pool of customer vehicles, or school owned vehicles. Prerequisites: AM 108, 102, 104. Audit available.

AM 115 Brake Systems II 4.00 Brake diagnosis and repair of base brakes and anti-lock systems in a laboratory/shop setting. Covers how to do complete brake inspections and determine what repairs are needed. Ordering parts and completing repairs under close instructor supervision. Prerequisites: AM 108, 102, 105. Audit available.

AM 117 Manual Drive Train and Axles 4.00 Work on approved customer automobiles diagnosing and servicing components of standard transmissions/transaxles. Provides realistic understanding of procedures which take place in an automotive repair facility each day. Prerequisites: AM 108, 107. Audit available.

AM 121 Drive Train Systems II 4.00 Introduces automatic transmissions/transaxles, the study of power flow and diagnosis of automatic transmission mechanical and hydraulic systems. Lecture and lab topics include proper rebuild procedures, component identification and dynamometer testing of a student built automatic transmission. Audit available.

AM 122 Electrical III 4.00 Work on approved automobiles and study how to diagnose electrical problems, read schematics, use test equipment, perform satisfactory wire connections, test, repair, and/or replace electrical units. Prerequisites: AM 102, 108 and 112. Audit available.

AM 123 Engine Performance III 4.00 Study the operation, servicing and testing of electronic fuel injection systems, on board diagnostics I and II, idle control systems. Students will diagnose failed fuel injection vehicles. Prerequisites: AM 108, AM 101, AM 102, AM 103, AM 113 and AM 112. Audit available.

AM 125 Brake Systems III 4.00 Work on approved customer automobiles to diagnose customer complaints, analyze costs, repair and/or replace faulty brakes or related parts and use safety check sheets. Prerequisites: AM 108, 102, 105, 115.

AM 127 Automatic Transmission/Transaxle I 4.00 Work on automatic transmissions/transaxles and study how to trace the power flow, diagnose problems, disassemble, inspect and evaluate, clean and layout components. Reassemble and adjust transmission, and test the unit for its proper operation. Prerequisites: AM 108, 102. Audit available.

AM 131 Drive Train Systems I 4.00 Introduces manual transmissions/transaxles, the study of power flow and diagnosis of manual transmission systems. Lecture and lab work includes proper repair procedures, component identification and service procedures performed on school owned vehicles and components. Audit available.

AM 132 Drive Train Systems III 4.00 Introduces work on approved customer vehicles diagnosing and servicing automatic and manual drive train customer concerns. Provides a realistic experience and develops an understanding of procedures, which take place daily in an automotive repair facility. Audit available.

AM 133 Engine Performance IV 4.00 Continuation of Unit 23. Prerequisites: AM 108, AM 101, AM 102, AM 103, AM 113, AM 123 and AM 112. Audit available.

AM 137 Automatic Transmission/Transaxle II 4.00 Work on approved customer automobiles diagnosing and servicing components of the automatic transmission/transaxle. Provides specific understanding of shop procedures that take place in an automotive repair facility. Prerequisites: AM 108, 102, 127. Audit available.

AM 141 Undercar Systems II 4.00 Continuation of Undercar I, students will diagnose and repair base brakes and anti-lock systems. Introduce the basic principles of steering, suspension and wheel alignment for passenger cars and light duty trucks. Become familiar with tire construction, types and sizing. Practice disassembly and reassembly of steering and suspension system components. Become familiar and practice using computerized 4-wheel-alignment equipment and tire balancing machines. Audit available.

AM 142 Undercar Systems III 4.00 Covers diagnosis and repair of steering system service, suspension system service and 4-wheel alignments in a laboratory/shop setting. Includes how to perform complete steering and suspension system inspections and determine what repairs are needed, order parts and complete repairs under close instructor supervision. Vehicles serviced are drawn from a pool of customer or school owned vehicles. Audit available.

AM 143 Engine Performance V 4.00 Work on approved customer vehicles and perform maintenance and/or drivability hands on work much the same as would be done in the repair industry. Prerequisites: AM 108, 101, 102, 103, 113, 123, 133. Audit available.

AM 151 Undercar Systems I 4.00 Introduces principles of automotive braking systems. Practice disassembly/assembly of brake system components using school owned equipment including proper measuring and machining of brake drums and discs. Audit available.

AM 153 Engine Performance VI 4.00 Continuation of AM 143. Prerequisites: AM 108, 101, 102, 103, 113, 123, 133, 143. Audit available.

AM 161 Electrical Systems I 4.00 Introduces electrical theory, schematic symbols, battery and starter theory, operation, diagnosis and repair. Lecture and lab work includes proper repair procedures, component identification and service procedures performed on school owned vehicles and components. Audit available.

AM 162 Electrical Systems II 4.00 A continuation of reading schematics, starting and charging system theory, operation, diagnosis and repair. Lecture and lab work includes proper repair procedures, component identification and service procedures performed on school owned vehicles and components. Audit available.

AM 163 Electrical Systems III 4.00 Introduces customer work on approved automobiles including diagnosis of electrical problems, reading of schematics, use of test equipment, satisfactory completion of wire connections, testing, repair, and/or replacement of electrical units. Audit available.

AM 171 Heating and Air Conditioning Systems 4.00 Introduces theory, operation and repair of automotive heating and air conditioning systems. Students work on approved customer automobiles which includes testing and repair of HVAC control systems. Audit available.

AM 181 Engine Performance I 4.00 Introduces the use of automotive scan tools, lab scopes and electronic test equipment. Covers the operation and testing of electronic ignition systems including EI, DI and related components. Audit available.

AM 182 Engine Performance II 4.00 Introduces the causes of air pollution and climate change, the use of the five gas analyzer, catalytic converters, crankcase ventilation systems, evaporative control systems and federal and state emission control laws. Audit available.

AM 183 Engine Performance III 4.00 Introduces the operation, service and testing of fuel management systems, on board diagnostics and idle control systems. Students diagnose failed fuel management systems. Audit available.

AM 201 Auto Shop Lab I 4.00 Capstone course encompassing all theory and application of prerequisite courses in a live shop setting. Emphasis on advanced engine performance theory will be present. First class in a three course sequence. This class may be repeated one time for credit. Audit available.

AM 202 Auto Shop Lab II 4.00 Continuation of the capstone course in which students work on approved customer vehicles and perform maintenance, repair and/or drivability work in a live shop setting. Course will include an emphasis on alternative fuel vehicle technologies. Second class in a three course sequence. This class may be repeated one time for credit. Audit available.

AM 203 Auto Shop Lab III 4.00 Final capstone course in which students work on approved customer vehicles and perform maintenance, repair and/or drivability work in a live shop setting. Third class in a three course sequence. This class may be repeated one time for credit. Audit available.

AM 280A Cooperative Education: Automotive Service Work outside of the classroom at a job performing diagnostic and repair work under the supervision of a professional automotive technician. Department permission required.