



Automotive Technology (ASE)

Program Information

Automotive Technology consists of testing, diagnosing, repairing, and maintaining the mechanical, hydraulic, and electrical systems of the modern automobile.

The Automotive Technology program at Trenholm State Community College is designed to teach a student the basic principles of all eight areas of the National Automotive Technicians Education Foundation certifications (engine repair, automatic transmissions/transaxle, manual drive train and axles, suspension and steering, brakes, electrical/electronic systems, heating and air conditioning, and engine performance) as required by industry today.

Occupational Choices

The graduates of the Automotive Technology Program have technical skills and knowledge that prepares them to The graduates of the Automotive Technology Program have technical skills and knowledge that prepares them to enter varied fields. They can go into parts distribution, retail parts sales, tractor mechanics, truck repair, automotive manufacturing plants and the related suppliers. The Automotive Program graduates can go into the manufacturing industry where assembly and repair is needed. Most go into dealerships or independent automotive and/or truck repair facilities. Job opportunities for qualified applicants should be very good as some employers report difficulty finding workers with the right skills and education. Jobseekers who have completed formal postsecondary training programs—especially candidates with training in advanced automotive technology, such as hybrid fuel or computer systems—should enjoy the best job prospects. Those without formal automotive training are likely to face strong competition for entry-level jobs. The majority of job openings will be in automobile dealerships and independent repair shops, where most service technicians currently work.

Source: Bureau of Labor and Statistics Occupational Outlook Handbook, 2016-2017 Edition, 2015 Survey

Average Full-Time Wage

Automotive Technology is rapidly increasing in sophistication, and job prospects are far above average. As the need for specialized technicians grows, there is an increasing demand for entry level automotive technicians.

The median annual wage for automotive service technicians and mechanics was \$37,850 in May 2015. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$21,020, and the highest 10 percent earned more than \$63,330.

Source: Bureau of Labor and Statistics Occupational Outlook Handbook, 2016-2017 Edition, 2015 Survey

Awards Available

Associate in Applied Science Degree
Automotive Technology

Certificate
Automotive Technology

Short Term Certificate
Automotive Technology

Program Contact

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Program Coordinator/Instructor
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Location: Patterson Campus - Bldg. E

As part of ongoing planning and evaluation, the College regularly evaluates student learning outcomes for each program.

Estimated Program Length & Cost *

Award	Length	Credit Hours	Tuition Fees	Books	Tools	Supplies
Associate Degree	6 Terms	75	\$10,875	\$350	\$750	\$0
Certificate	6 Terms	60	\$8,700	\$350	\$750	\$0
Short Term Certificate	2 Terms	28	\$4,060	\$350	\$750	\$0

* Tax not included. Prices are subject to change without prior notice; cost of books may vary considerably among suppliers. Cost of general education books is in addition to the total listed above. The length of the program is based on full-time status of 12-15 credit hours per term. Enrollment in transitional level general education courses will alter the length of the program.

Associate in Applied Science Degree Automotive Technology

Required Technical Courses (53 credit hours)

Course	Title	Hrs
ASE-101	Fundamentals of Automotive Tech	3
ASE-112	Electrical Fundamentals	3
ASE-121	Braking Systems	3
ASE-122	Steering and Suspension	3
ASE-124	Automotive Engines	3
ASE-130	Drive Train and Axles	3
ASE-133	Motor Vehicle Air Conditioning	3
ASE-162	Electrical and Electronic Systems	3
ASE-182	Special Topics	2
ASE-212	Adv Electrical & Electronic Systems	3
ASE-220	Advanced Automotive Engines	3
ASE-224	Manual Transmission and Transaxle	3
ASE-230	Automatic Transmission & Transaxle	3
ASE-239	Engine Performance	3
ASE-244	Engine Performance and Diagnostics	3
ASE-246	Automotive Emissions	3
ASE-251	Dealership Work Experience	3
ASE-261	Dealership Work Experience	3

Required General Education (22 credit hours)

Course	Title	Hrs
CIS-149	Intro to Computers	3
ENG-101	English Composition I	3
ENG-102	English Composition II	3
	OR ENG-130 Technical Report Writing	
	OR SPH-106 Fund of Oral Comm	
MTH-103	Intro to Technical Mathematics	3
MTH-104	Plane Trigonometry	3
MUS-101	Music Appreciation	3
	OR ART-100 Art Appreciation	
ORI-101	Orientation to College	1
PSY-200	General Psychology	3

Total Hours: 75 Credit Hours; 2,368 Contact Hours

Certificate Automotive Technology

Required Technical Courses (47 credit hours)

Course	Title	Hrs
ASE-101	Fundamentals of Automotive Tech	3
ASE-112	Electrical Fundamentals	3
ASE-121	Braking Systems	3
ASE-122	Steering and Suspension	3
ASE-124	Automotive Engines	3
ASE-130	Drive Train and Axles	3
ASE-133	Motor Vehicle Air Conditioning	3
ASE-162	Electrical and Electronic Systems	3
ASE-182	Special Topics	2
ASE-212	Adv Electrical and Electronic Systems	3
ASE-220	Advanced Automotive Engines	3
ASE-224	Manual Transmission and Transaxle	3
ASE-230	Automatic Transmission and Transaxle	3
ASE-239	Engine Performance	3
ASE-244	Engine Performance and Diagnostics	3
ASE-246	Automotive Emissions	3

Required General Education (13 credit hours)

ENG-101	English Composition I	3
MTH-103	Intro to Technical Mathematics	3
MUS-101	Music Appreciation	3
	OR ART-100 Art Appreciation	
ORI-101	Orientation to College	1
PSY-200	General Psychology	3

Total Hours: 60 Credit Hours; 1,744 Contact Hours

Short Term Certificate Automotive Technology

Required Technical Courses (27 credit hours)

Course	Title	Hrs
ASE-101	Fundamentals of Automotive Tech	3
ASE-112	Electrical Fundamentals	3
ASE-121	Braking Systems	3
ASE-122	Steering and Suspension	3
ASE-124	Automotive Engines	3
ASE-133	Motor Vehicle Air Conditioning	3
ASE-220	Advanced Automotive Engines	3
ASE-239	Engine Performance	3
ASE-261	Dealership Work Experience	3

Required General Education (1 credit hours)

Course	Title	Hrs
ORI-101	Orientation to College	1

Total Hours: 28 Credit Hours; 1,024 Contact Hours

Course Descriptions for Automotive Technology (ASE)

Course #	Course Title	Theory Contact Hours/Wk	Lab Contact Hours/Wk	Credit Hours
ASE-101	FUNDAMENTALS OF AUTOMOTIVE TECHNOLOGY PREREQUISITE: None. This course provides basic instruction in Fundamentals of Automotive Technology. This is a CORE course and supports CIP Codes 15.0803 and 47.0604.	1	5	3
ASE-112	ELECTRICAL FUNDAMENTALS PREREQUISITE: None This course introduces the principles and laws of electricity. Emphasis is placed on wiring diagrams, test equipment, and identifying series, parallel and series-parallel circuits. Upon completion, students should be able to calculate, build, and measure circuits. This is a CORE course.	1	5	3
ASE-121	BRAKING SYSTEMS PREREQUISITE: None This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on the practical application of brakes. This is a CORE course. ABR-223 – Automotive Mechanical Components is a suitable substitute for this course.	1	5	3
ASE-122	STEERING AND SUSPENSION PREREQUISITE: None. This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on the practical application of steering and suspension. This is a CORE course. ABR-255 – Steering and Suspension is a suitable substitute for this course.	1	5	3
ASE-124	AUTOMOTIVE ENGINES PREREQUISITE: None. This course provides instruction on the operation, design, and superficial repair of automotive engines. Emphasis is placed on understanding the four stroke cycle, intake and exhaust manifolds and related parts, engine mechanical timing components, engine cooling and lubrication system principles and repairs, and basic fuel and ignition operation. This is a CORE course and supports CIP Codes 47.0604 and 15.0803.	1	5	3
ASE-130	DRIVE TRAIN AND AXLES PREREQUISITE: None. This course provides basic instruction in automotive drive trains and axles. Emphasis is placed on the understanding and application of basic internal and external operation relating to proper operation and driveability. This is a CORE course. ABR-223 – Automotive Mechanical Components is a suitable substitute for this course.	1	5	3
ASE-133	MOTOR VEHICLE AIR CONDITIONING PREREQUISITE: None. This course provides basic instruction in theory, operation, and repair of automotive heating and air conditioning systems. Emphasis is placed on the understanding and repair of vehicle air conditioning and heating systems, including but not limited to air management, electrical and vacuum controls, refrigerant recovery, and component replacement. ABR-258 – Heating and AC in Collision Repair is a suitable substitute for this course.	1	5	3
ASE-162	ELECTRICAL AND ELECTRONIC SYSTEMS PREREQUISITE: ASE-112 or instructor approval This is an intermediate course in automotive electrical and electronic systems. Emphasis is placed on troubleshooting and repair of battery, starting, charging, and lighting systems, subsystems, and components. This is a CORE course.	1	5	3
ASE-182	SPECIAL TOPICS PREREQUISITE: ASE-230 These courses are designed to allow the student to specialize in a particular area of study with minimum instruction in automotive mechanics application and with evaluation at the instructor's discretion. Emphasis is placed on a topic/project that the student is interested in and may include any automotive or related area in automotive mechanics. Upon completion, the student should be able to work with minimum instruction and execute the necessary techniques to finish a live work project of their choice.	0	6	2
ASE-212	ADVANCED ELECTRICAL AND ELECTRONIC SYSTEMS PREREQUISITE: ASE-162 or instructor permission This course provides instruction in advanced automotive electrical and electronic systems. Emphasis is placed on troubleshooting and repair of advanced electrical and electronic systems, subsystems, and components.	1	5	3

Course #	Course Title	Theory Contact Hours/Wk	Lab Contact Hours/Wk	Credit Hours
ASE-220	ADVANCED AUTOMOTIVE ENGINES	1	5	3
	PREREQUISITE: None This course provides in-depth instruction concerning internal engine diagnosis, overhaul and repair, including but not necessarily limited to the replacement of timing chains, belts, and gears, as well as the replacement or reconditioning of valve train components as well as replacement of pistons, connecting rods, piston rings, bearings, lubrication system components, gaskets, and oil seals. This course supports CIP Codes 47.0604 and 15.0803.			
ASE-224	MANUAL TRANSMISSION/TRANSAXLE	1	5	3
	PREREQUISITE: None This course covers basic instruction in manual transmission and transaxles. Emphasis is placed on the understanding and application of basic internal and external operation relating to proper operation and driveability. This course supports CIP Codes 15.0803 and 47.0604.			
ASE-230	AUTOMATIC TRANSMISSION/TRANSAXLE	1	5	3
	PREREQUISITE: None This course provides basic instruction in automatic transmissions and transaxles. Emphasis is placed on the comprehension of principles and powerflow of automatic transmissions and repairing or replacing internal and external components. This is a CORE course and supports CIP Codes 15.0803 and 47.0604.			
ASE-239	ENGINE PERFORMANCE	1	5	3
	PREREQUISITE: None This course provides basic instruction in engine performance with emphasis on fuel and ignition systems relating to engine operation. This is a CORE course and supports CIP Code 15.0803 and 47.0604.			
ASE-244	ENGINE PERFORMANCE AND DIAGNOSTICS	1	5	3
	PREREQUISITE: None This course provides advanced instruction in engine performance. Emphasis is placed on engine management and computer controls of ignition, fuel, and emissions systems relating to engine performance and driveability. This is a CORE course and supports CIP Codes 15.0803 and 47.0604.			
ASE-246	AUTOMOTIVE EMISSIONS	1	5	3
	PREREQUISITE: None This is an introductory course in automotive emission systems. Emphasis is placed on troubleshooting and repair of systems, subsystems, and components. This course supports CIP code 15.0803 and 47.0604.			
ASE-251	DEALERSHIP WORK EXPERIENCE	0	15	3
	PREREQUISITE: None At the end of each on-campus period, the student returns to the sponsoring dealership to complete this segment of the program working full-time under the supervision of the dealership student work coordinator. He/she is expected to complete work assignments in the dealership that will reinforce and parallel the course work just completed at the college. Although indicated as 15 contact hours, students generally work on a full-time basis (40 hours per week) at the dealership. An evaluation of the students in dealership work performance is completed by the dealership supervisor.			
ASE-261	DEALERSHIP WORK EXPERIENCE	0	15	3
	PREREQUISITE: None At the end of each on-campus period, the student returns to the sponsoring dealership to complete this segment of the program working full-time under the supervision of the dealership student work coordinator. He/she is expected to complete work assignments in the dealership that will reinforce and parallel the course work just completed at the college. Although indicated as 15 contact hours, students generally work on a full-time basis (40 hours per week) at the dealership. An evaluation of the students in dealership work performance is completed by the dealership supervisor.			