

AUTOMOTIVE TECHNOLOGY

- Basic Automotive Technology Certificate (coursecatalog.tvcc.edu/pathways/service-production-industry/automotive-technology/basic-automotive-technology-certificate/)

AUMT-1005. Introduction to Automotive Technology. (0 Credits)

An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and basic automotive maintenance. May be taught manufacturer specific.

AUMT-1035. Automoto Engine Sys Operation & Diagnosis. (0 Credits)

A study of the use of test equipment necessary for diagnosis and repair of the automobile engine and the proper use of this engine systems service equipment. Topics include the operation and repair techniques of the engine cooling system, intake and exhaust manifold.

AUMT-1055. Auto Oper & Diag of Ignition, Fuel, Emis. (0 Credits)

An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and basic automotive maintenance. May be taught manufacturer specific.

AUMT-1201. Introduction & Theory of Automotive Technology. (2 Credits)

(2-1-3) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. An introductory overview of the automotive service industry including history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and automobile maintenance. Lab fee.

AUMT-1213. Automotive Suspension & Steering Systems Theory. (2 Credits)

(2-1-3) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. A study of automotive suspension and steering systems including the theory of wheel and tire construction and alignment angles and procedures. Lab fee.

AUMT-1241. Automotive Climate Control Systems Theory. (2 Credits)

(2-1-3) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. Theory of automotive climate control systems. Emphasis on the refrigeration cycle and diagnosis of system malfunctions. Includes manual and electronic climate control systems. Lab fee.

AUMT-1257. Automotive Brake Systems Theory. (2 Credits)

(2-1-3) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. Theory and principles related to the design, operation, and servicing of automotive braking systems. Includes disc and drum-type brakes, hydraulic systems, power assist components, anti-lock brake systems, and diagnosis and reconditioning procedures. Lab fee.

AUMT-1305. Introduction to Automotive Technology. (3 Credits)

(3-2-2) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and basic automotive maintenance. May be taught manufacturer specific. Lab fee.

AUMT-1310. Automotive Brake Systems. (3 Credits)

(3-2-4) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. Operation and repair of drum/disc type brake systems. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems, and parking brakes. May be taught manufacturer specific. Lab fee.

AUMT-1316. Automotive Suspension & Steering Systems. (3 Credits)

(3-2-4) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. Diagnosis and repair of automotive suspension and steering systems including electronically controlled systems. Includes component repair, alignment procedures and tire and wheel service. May be taught manufacturer specific. Lab fee.

AUMT-1345. Automotive Climate Control Systems. (3 Credits)

(3-2-4) This course is taken for academic credit. DUAL AUTO PROGRAM ONLY. Students will earn an A, B, C, D, F, or W. Diagnosis and repair of manual/electronic climate control systems. Includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific. Lab fee.

AUMT-1405. Introduction to Automotive Technology. (4 Credits)

(4-2-6) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and basic automotive maintenance. May be taught manufacturer specific. Lab fee.

AUMT-1419. Automotive Engine Repair. (4 Credits)

(4-2-8) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Fundamentals of engine operation, diagnosis and repair. Emphasis on identification, inspection, measurements, and disassembly, repair, and reassembly of the engine. May be taught manufacturer specific. Lab fee.

AUMT-1445. Automotive Climate Control Systems. (4 Credits)

(4-2-8) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Diagnosis and repair of manual/electronic climate control systems. Includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific. Lab fee.

AUMT-2017. Automotive Engine Performance Analysis. (0 Credits)

Theory, operation, diagnosis of drivability concerns, and repair of ignition and fuel delivery systems. Use of current engine performance diagnostic equipment. May be taught manufacturer specific.

AUMT-2034. Automotive Engine Performance Analysis I. (0 Credits)

Diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems. Includes use of advanced engine performance diagnostic equipment. May be taught manufacturer specific.

AUMT-2313. Automotive Drive Train and Axles. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. A study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials with emphasis on the diagnosis and repair. May be taught manufacturer specific. Lab fee.

AUMT-2325. Automotive Auto Transmission & Tranaxle Transaxle. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. A study of the operation, hydraulic circuits and electronic controls of modern automatic transmissions and automatic transaxles. Diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and repair techniques. May be taught manufacturer specific. Lab fee.

AUMT-2417. Automotive Engine Performance Analysis I. (4 Credits)

(4-2-8) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Theory, operation, diagnosis of drivability concerns, and repair of ignition and fuel delivery systems. Use of current engine performance diagnostic equipment. May be taught manufacturer specific. Lab fee.

AUMT-2434. Automotive Engine Performance Analysis II. (4 Credits)

(4-2-8) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems. Includes use of advanced engine performance diagnostic equipment. May be taught manufacturer specific. Lab fee.

What Automotive Service Technicians and Mechanics Do (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-2>)

Automotive service technicians and mechanics, often called *service technicians* or *service techs*, inspect, maintain, and repair cars and light trucks.

Duties

Automotive service technicians and mechanics typically do the following:

- Identify problems, often by using computerized diagnostic equipment
- Plan work procedures, using charts, technical manuals, and experience
- Test parts and systems to ensure that they work properly
- Follow checklists to ensure that all critical parts are examined
- Perform basic care and maintenance, including changing oil, checking fluid levels, and rotating tires
- Repair or replace worn parts, such as brake pads, wheel bearings, and sensors

- Perform repairs to manufacturer and customer specifications
- Explain automotive problems and repairs to clients

Although service technicians work on traditional mechanical systems, such as engines, transmissions, and drivebelts, they also must be familiar with a growing number of electronic systems. Braking, transmission, and steering systems, for example, are controlled primarily by computers and electronic components.

Other integrated electronic systems, such as accident-avoidance sensors, are becoming common as well. In addition, a growing number of technicians are required to work on vehicles that use electricity or alternative fuels, such as ethanol.

Service technicians use many different tools, including computerized diagnostic tools and power tools such as pneumatic wrenches, lathes, welding torches, and jacks and hoists. These tools usually are owned by their employers.

Service technicians also use many common hand tools, such as wrenches, pliers, and sockets and ratchets. Service technicians generally own these tools themselves. In fact, experienced workers often have thousands of dollars invested in their personal tool collection. For example, some invest in their own set of pneumatic tools—such as impact wrenches—powered by compressed air.

The following are examples of types of service technicians:

Automotive air-conditioning technicians install and repair air-conditioners and parts, such as compressors, condensers, and controls. These workers must be trained and certified in handling refrigerants.

Brake technicians diagnose brake system problems, adjust brakes, replace brake rotors and pads, and make other repairs on brake systems. Some technicians specialize in both brake and front-end work. (See “Front-end technicians.”)

Drivability technicians, also known as *diagnostic technicians*, use their extensive knowledge of engine management and fuel, electrical, ignition, and emissions systems to diagnose issues that prevent engines from performing efficiently. They often use the onboard diagnostic system of a car and electronic testing equipment such as scan tools and multimeters to find the malfunction.

Front-end technicians diagnose ride, handling, and tire wear problems. To correct these problems, they frequently use special alignment equipment and wheel-balancing machines.

Transmission technicians and rebuilders work on gear trains, couplings, hydraulic pumps, and other parts of transmissions. An extensive knowledge of computer controls and the ability to diagnose electrical and hydraulic problems are needed to work on these complex components.

Technicians who work on large trucks and buses are described in the diesel service technicians and mechanics profile (<https://www.bls.gov/ooh/installation-maintenance-and-repair/diesel-service-technicians-and-mechanics.htm>).

Technicians who work on farm equipment, construction vehicles, and railcars are described in the heavy vehicle and mobile equipment service technicians profile (<https://www.bls.gov/ooh/installation-maintenance-and-repair/heavy-vehicle-and-mobile-equipment-service-technicians.htm>).

Technicians who repair and service motorcycles, motorboats, and small all-terrain vehicles are described in the profile on small engine mechanics (<https://www.bls.gov/ooh/installation-maintenance-and-repair/small-engine-mechanics.htm>).

SUMMARY (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm>)

- Automotive service technicians and mechanics
- 2018 Median Pay: \$40,710 per year, \$19.57 per hour
- Typical Entry-Level Education: Postsecondary non-degree award
- Work Experience in a Related Occupation: None
- On-the-job Training: Short-term on-the-job training
- Number of Jobs, 2018: 770,100
- Job Outlook, 2018-28: -1% (Little or no change)
- Employment Change, 2018-28: -6,400

Work Environment (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-3>)

Most automotive service technicians and mechanics work in well-ventilated and well-lit repair shops. Although technicians often identify and fix automotive problems with computers, they commonly work with greasy parts and tools, sometimes in uncomfortable positions.

How to Become an Automotive Service Technician or Mechanic (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-4>)

Employers prefer that automotive service technicians and mechanics complete a program at a postsecondary institution. Industry certification is usually required once the person is employed.

Pay (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-5>)

The median annual wage for automotive service technicians and mechanics was \$40,710 in May 2018.

Job Outlook (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-6>)

Employment of automotive service technicians and mechanics is projected to show little or no change from 2018 to 2028. Job opportunities for qualified jobseekers should be very good.

State & Area Data (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-7>)

Explore resources for employment and wages by state and area for automotive service technicians and mechanics.

Similar Occupations (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-8>)

Compare the job duties, education, job growth, and pay of automotive service technicians and mechanics with similar occupations.

More Information, Including Links to O*NET (<https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-9>)

Learn more about automotive service technicians and mechanics by visiting additional resources, including O*NET, a source on key characteristics of workers and occupations.

SUGGESTED CITATION:

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Automotive Service Technicians and Mechanics, on the Internet at <https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm> (visited *March 15, 2020*).

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