

# Automotive Service Technology

## The Career

The Automotive Service Technology program prepares students to work in the exciting, ever-changing fields surrounding the automotive world. Today's vehicles are high-tech machines with complex computer, electrical and mechanical systems. Therefore, becoming familiar with such components as hybrid synergy drives, fuel cells, onboard diagnostics systems, navigation systems and drive-by-wire technology is crucial to being able to diagnose and repair today's automobiles.

<b>Service Technician salary:</b>	Entry-level \$31,717 - \$32,653	Experienced \$45,758 - \$55,654
-----------------------------------	------------------------------------	------------------------------------

Source: AASP-MN 2007 Salary Survey

## The Program

Automotive Service students learn cutting-edge skills in all areas of automotive repair, including how to use high-tech equipment to diagnose and repair electrical, electronic and computer circuit problems along with engine performance, accessories, and all mechanical systems of an automobile. The program is focused on hands-on activities with most learning taking place in lab settings with on-the-car training. All of Dunwoody's Automotive Service Technology instructors are ASE certified by the National Institute for Automotive Service Excellence. The program itself is certified by the National Automotive Technicians Education Foundation.

## Program Length

This is a six-quarter program, each lasting 12 weeks. With 114 credits, students graduate with either an Associate of Applied Science (A.A.S.) degree. Students may also receive a Dunwoody Diploma for a shorter version of the program.

## Applying to Dunwoody is easy

To apply online, visit [dunwoody.edu](http://dunwoody.edu). Or, to speak with a Dunwoody Admissions representative, call 612-374-5800 or 800-292-4652.

Dunwoody's Admissions team is committed to working with you to ease and simplify the admissions process and provide all the necessary information regarding our academic programs, degree opportunities, financial aid, expectations and everything else that enters into such an important decision.

Other exciting Dunwoody Automotive Technology programs and degree options are available. Visit [dunwoody.edu](http://dunwoody.edu) for complete details.



## A.A.S. Degree Requirements

AUTO124	Engine Fundamentals
AUTO125	Brake Operation & Repair
or	
AUTO125A	Automotive Brakes I
AUTO125B	Automotive Brakes II
AUTO126	General Skills
AUTO127	Wheel Alignment & Suspension
or	
AUTO127A	Wheel Alignment & Suspension 1
AUTO127B	Wheel Alignment & Suspension II
AUTO128	Drive Train Operation & Repair
AUTO144	Engine Principle & Practices
AUTO145	Engines Lab
AUTO146	Standard Transmission Diagnosis & Repair
AUTO150	Chassis Electrical
AUTO153	Automotive HVAC Systems
AUTO154	Introduction to Fuel Delivery Systems
AUTO161	Automatic Transmission Principles
AUTO162	Automatic Transmission, Advanced Principles & Lab
AUTO171	Electrical & Electronic Principles
AUTO172	Starting & Chrging Systems
AUTO173	Introduction to Ignition & Computer Systems
AUTO174	Computer Controls & Testing
AUTO211	Engine Control Systems Operation
AUTO212	Engine Control Systems Diagnosis
AUTO213	Engine Control Systems Analysis
AUTO225	Production
or	
AUTO226	Production Internship
COMM100	Comm Thry & Prac
COMM101	Electronic Comm.
COMM150	Comm:Interact & Proc
ENGL101	Composition
MATH103	Applications AUTO
QUAL110	Fund. of Quality
RSCH100	Research Strategies
	Diversity Electives
	Social/Behavior Science Electives
	Arts/Humanities Electives
	Science Electives



818 Dunwoody Boulevard  
Minneapolis, MN 55403  
612-374-5800 • 800-292-4625  
[dunwoody.edu](http://dunwoody.edu)



Dunwoody's 2+2 concept means every graduate of a Dunwoody two-year associate's degree program is qualified to be admitted into one of our breakthrough bachelor's degree programs if they would like to continue their education.

# Automotive Service Technology

## Course Descriptions

### **AUTO124 - Engine Fundamentals**

This class covers component names, purpose and operation for the following engine systems: cooling, lubrication, valve, piston, rings, crankshafts, bearings and exhaust.

### **AUTO125 - Brake Operation and Repair**

Theory of design, principles of operation, and diagnosis and repair procedures for the following systems: drum brakes, disc brakes, power brakes and hydraulic system components.

### **AUTO125A - Automotive Brakes I**

Principles of brake operation and repair. If credits are received in both AUTO125A and AUTO125B, student can use these credits in place of AUTO125 towards a diploma or A.A.S. degree in Automotive Service or a certificate in Automotive Maintenance.

### **AUTO125B - Automotive Brakes II**

Diagnose and repair procedures for drum brakes, disc brakes, power assists and hydraulic system components. If credits are received in both AUTO125A and AUTO125B, student can use these credits in place of AUTO125 towards a diploma or A.A.S. degree in Automotive Service or a certificate in Automotive Maintenance.

### **AUTO126 - General Skills**

Identification and description of fasteners and fittings, use of measuring instruments, oxyacetylene torch procedures, drilling and tapping, and tool use.

### **AUTO127 - Wheel Alignment and Suspension**

Theory of design, principles of operation, diagnosis, troubleshooting and repair procedures; front suspension, rear suspension, steering systems. Two- and four-wheel alignment principles and procedures.

### **AUTO127A - Wheel Alignment & Suspension I**

This course is activated to allow for transferring credits from High School Automotive programs and should not be listed in the catalog. See AUTO127

### **AUTO127B - Wheel Alignment & Suspension II**

This course is activated to allow for transferring credits from High School Automotive programs and should not be listed in the catalog. See AUTO127

### **AUTO128 - Drive Train Operation and Repair**

Theory of design, principles of operation, diagnosis, troubleshooting and repair procedures for drive axles, drive shafts, universal joints, differentials and clutches.

### **AUTO144 - Engine Principles and Practices**

Engine design features, component construction and materials, mechanical testing, disassembly and reassembly procedures, component inspection and measurement procedures, component reconditioning procedures.

### **AUTO145 - Engines Lab**

Disassembly, inspection, measurement, reassembly of engine cooling systems, manifolds, cylinder heads, pistons and connecting rods, cylinder block, camshaft and timing mechanism and crankshafts. Cylinder head and valve reconditioning. Note: Work is performed on running engines and validated by proper operation when work is completed.

### **AUTO146 - Standard Transmission Diagnosis & Repair**

This class covers theory of operation, inspection and diagnosis principles. Disassembly and reassembly of rear- and front-drive transmissions and transaxles including gear trains and shifting mechanisms will also be addressed.

### **AUTO150 - Chassis Electrical**

Topics covered are instrument and accessory operation, diagnosis and repair, lighting systems, circuit tracing and wiring repair. Participants will

learn wiring circuit interpretation, accessory operation, lighting system design and service procedures.

### **AUTO153 - Heating, Ventilation and A-C**

Topics covered are physics and principles of automotive heating and air conditioning systems, including system service, refrigerant recovery and recycling, comparison of the R-134a systems to R-12 systems. Participants will learn the physics and principals of heating and air conditioning, testing and service procedures, as well as practice diagnosis, service and repair of automotive air conditioning systems.

### **AUTO154 - Intro to Auto Fuel Systems**

Topics covered are theory of fuel delivery, fuels and turbo charging, fuel pump testing, introduction to fuel injection, diesel and direct injection systems. Participants will practice diagnosis, service and repair basic automotive fuel systems.

### **AUTO161 - Automatic Transmission Principles**

Fundamentals of planetary gears, theory of operation of components and controls. Disassembly, inspection and reassembly of a common three-speed automatic transmission to reinforce theoretical information. General testing procedures and diagnostic process.

### **AUTO162 - Automatic Transmissions, Adv Principles & Lab**

Theory of operation of electronic controls. Disassembly, inspection and reassembly of component automatic transmissions and transaxles. Practice using service information and manuals to perform tasks and diagnose typical types of problems. Diagnostic pressure testing. Electronic scan tool testing.

### **AUTO171 - Electrical & Electronic Principles**

Studies will include: The theory and principles of Ohm's Law, circuit laws, magnetism, electromagnetism, induction and basic electronics including sensors and semiconductors; the use of voltmeters, ohmmeters and ammeters to check electrical circuits and the testing and tracing of electrical circuits.

### **AUTO172 - Starting & Charging Systems**

Batters, Cranking and Charging system components, circuits, operation and testing will be covered, including: Battery construction, operation and testing, cranking motor circuit testing; alternators and regulators including charging output, voltage regulator and charging circuit testing; students will also be introduced to computer controlled starting and charging systems.

### **AUTO173 - Intro to Ignition & Computer Systems**

Studies will include the principles of ignition system operation including primary and secondary circuit components, operation, diagnosis and repair. Also covered will be the fundamentals of computer inputs and outputs along with the use of Lab Scopes and Scan Tools in evaluating sensors and systems.

### **AUTO174 - Computer Controls & Testing**

Along with a study of advanced computer inputs and outputs, students will: use a variety of Scan Tools to retrieve data and diagnose system conditions; be familiarized with hybrid vehicle components and operation along with the components and operation of inverters and converters.

### **AUTO211 - Engine Control Systems Operation**

In-depth analysis of ignition, fuel, starting, charging, emission and computer systems design and operation, as preparation for diagnosing today's modern, high-tech vehicles.

### **AUTO212 - Engine Control Systems Diagnosis**

Diagnostic procedures for the ignition, fuel, starting, charging, emission and computer systems of many manufacturers.

### **AUTO213 - Engine Control Systems Analysis**

Use of standard and computerized tune-up test equipment to make a complete performance analysis and/or to diagnose specific problems and determine the work needed on vehicles brought in for service. Non-computerized engines and computerized fuel-injected vehicles will be

# Automotive Service Technology

worked on. Repairs and adjustments to restore the ignition, fuel, starting, charging, emission and computer systems to as near as original factory and EPA standards as possible.

## **AUTO225 - Production**

Practical shop experience in all aspects of automotive repair on customer's vehicle. All types of electrical, mechanical and diagnostic repair. Also included will be the management and operation of a shop, writing a repair order, ordering parts and working with a customer.

## **AUTO226 - Production Internship**

Supervised training in repairing various problems with customer vehicles while working at an automotive repair facility. Needs department director approval. This course can be taken in lieu of AUTO225 Production. Student must follow approved guidelines listed in the internship packet.