

# Automotive Service Technology

**CHAIR:** Ron Downing

**CO-CHAIR:** Daryl Futley

**CONTEST DATE:** April 26, 2018

**CONTEST LOCATION:** Hutchinson CTEA, T104

**CONTEST TIME:** 8:00 am

**PURPOSE:** To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of automotive service technology.

**ELIGIBILITY:** Open to active SkillsUSA members enrolled in programs with automotive technician or automotive service technology as the occupational objective

**CLOTHING REQUIREMENT:** Unless the contest chair says otherwise, students are required to wear the Official SkillsUSA Kansas T-shirt and blue jeans (no tares, holes, or bagginess) clean and neat with appropriate shoes for contest or Official SkillsUSA light blue work shirt and navy pants; black, brown or tan leather work shoes; and *Safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)*

Official SkillsUSA Kansas T-shirt attire



Official SkillsUSA blue work shirt attire



**FORMULA CONTEST: Automotive Service Technology**

**Automotive Service Technology: 48 Max Contestants**

**FORMULA CONTEST:**

The following schools/colleges may enter the following number of students in competition:

Coffeyville Community College	1
Cowley County Community College	1
Dodge City Community College	1
Fredonia High School	1
Highland Community College	1
Hutchinson CTEA	1
Hutchinson Community College – CTEA	1
Kansas City Kansas Community College	9
Labette County High School	1
Manhattan High School	1
North Central Kansas Technical College	4
Northwest Kansas Technical College	2
Olathe Advanced Technical Center	6
Ottawa High School	1
Parsons High School	0
Pittsburg High School	1
Pittsburg State University	0
Salina Area Technical College	1
Tonganoxie High School	1
Washburn Institute of Technology	7
Wichita Area Technical College	5
Wichita North High School	1
Wichita South High School	1

Formula: School ART SkillsUSA member = \_\_\_\_ / 541 X 48 = # \_\_\_\_ School Contestants

541 = Number of Statewide AST SkillsUSA Members

48 = Maximum seating for contest

Example if your school had 22 members one would divide that number by 541x 48 totaling 1.952 allowing that school to enter 1 student in the competition. The only time a number is rounded up if the number is below 0.1 giving that school an opportunity to compete. Exception to the rule would be if we did not max out the contest availability. Another exception to the rule would be if we exceeded the Max capacity of the contest then we eliminate schools that only enroll 1 member to compete in a particular formula contest. The schools that were eliminated from the formula contest are encouraged to enroll students in the Job Skill A or Job Skill Open contest still giving students the opportunity to win a medal and possibility attend the National Conference.

NOTE: If your school was eliminated from the formula due to low enrollment, or if you have more students that you want to compete, fill out the contest alternate form. If a spot come available, we select from the contest alternate forms that were submitted.

## 2018 Kansas AST Updates

### Contest Stations for Secondary & Post-Secondary AST Competition

MANUFACTURER	TASK	TOOLS/EQUIPMENT
1. GM/Chrysler	<p><b>Engine Repair:</b></p> <p>Measurements on engine block and/or cylinder head. Demonstrate proper use of a torque wrench</p>	<p>Service Information</p> <p>Precision measuring tools, standard micrometer, feeler gauge, dial caliper, plastigauge, straightedge, torque wrench</p>
2. Various Manufactures	<p><b>HVAC Systems:</b></p> <p>Gauge Diagnosis Parts ID Component Measurements</p>	<p>Manifold gauges</p> <p>Spec sheets, Feeler gauge, Fluke DVOM, Parts ID.</p>
3. Auto Technics	<p><b>Electronic Circuit Board Testing:</b></p> <p>Using test board and electrical system components (relays, bulbs, switches, etc)  Construct circuit &amp; perform electrical measurements</p>	<p>Wiring Schematics. DVOM. Resistance and Voltage measurements.</p> <p>Will also be required to measure current with a shunt.</p>
4. Ford	<p><b>Power Train:</b></p> <p>Manual Transmission/Transaxle Service: Perform measurements on a T50D Transmission and a MTX-75 Transaxle</p>	<p>Service Info, dial indicator, micrometers, torque wrench, feeler gauge.</p>
5. Various Manufactures	<p><b>Brakes:</b></p> <p>Disc Brake Measurements, Drum Brake Diagnosis. ABS Wheel Speed Sensor Testing</p>	<p>DVOM, Lab Scope, Dial Indicator, Micrometers, dial caliper, Hand vacuum pump, Brake tools.</p>
6. Nissan.	<p><b>Engine Performance Diagnosis:</b> Using a 2017 or 2018 Nissan</p>	<p>DVOM</p> <p>Factory Scan Tool</p> <p>Nissan Consult 3</p>
7. Mitchell On-Demand	<p><b>Electronic Service Information:</b></p>	<p>Computer.</p>

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8. Hunter Engineering	<p><b>Steering/Suspension/Alignment:</b>                  Inspection Procedures, Analyze Life Alignment Readings, TPMS Diagnostics, Parts ID.</p>	<p>Late model vehicle.                   Alignment rack,                   Alignment specs, Snap- On TPMS3 Diagnostic Tool.</p>
9. Electude	<p><b>Computer Based Diagnostic:</b>                  scenarios and questions on electrical/electronic and vehicle communication systems.</p>	<p>Computer.</p>
10. SP/2	<p><b>Safety:</b>                   Demonstrate knowledge of automotive work related safety equipment, environmental issues, procedures and familiarity with MSDS and PPE.</p>	<p>Assorted PPE and MSDS.                   Many of the questions will be similar to those on the S/P2 Mechanical Safety and Mechanical Pollution Prevention Quiz. See Station # 10 below.</p>
11. Foley Equipment	<p><b>Mock Job Interview:</b></p>	<p><b>Resume:</b>                   See station # 11 below for additional information on this station.</p>
12. Davis-Moore Auto Group	<p><b>On Car Body Electrical Diagnosis:</b> Using a 2017-18 Lincoln Product</p>	<p>DVOM, Ford service info</p>
13.	<p>DEAD STATION??</p>	
14-16. Written Test	<p><b>ASE Written Test:</b>                   This 100 question written test will test the student’s technical knowledge of automobile diagnosis and repair in the vehicle system specialty areas of:</p> <ul style="list-style-type: none"> <li>• Engine Repair</li> <li>• Automatic Transmission Transaxle</li> <li>• Manual Drive Train &amp; Axles</li> <li>• Suspension &amp; Steering</li> <li>• Brakes</li> </ul>	

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	<ul style="list-style-type: none"><li>• Electrical/Electronic Systems</li><li>• Heating &amp; A/C</li><li>• Engine Performance</li></ul>	
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### NOTE:

- **ALL STATIONS ARE SUBJECT TO CHANGES WITHOUT NOTICE**
- **Competitors must furnish their own safety glasses**
- **The competition committee will furnish DVOM's at all stations where they are required (Competitors will not be required to bring their own meters )**
- **No shorts or open toed shoes will be allowed in the contest area**
- **Clothing required by SkillsUSA Kansas**
- **All stations will have a 15 minute time limit with a short read only time at the start of each station.**
- **There will be a final contestant briefing on Thursday morning following registration**
- **Scan tools will be used at one station ( Scan tools will be provided by the contest committee )**
- **Competitors must also bring a one page resume to the contest and turn it in at registration. Prior to the competition they should look over and get familiar with a Job Description for a technician's position with Foley Equipment. ( This job description is attached in the updates. )**

#### Station # 6

The Nissan Consult 3 factory scan tool will be used to assist in body electrical diagnosis. Instructions will be available at the station to help competitors operate the scan tool. Station judges will assist competitors with the use of the scan tool and how to use the basic functions as well.

#### Station # 8

Competitors will be required to use the Snap On TPMS3 hand held tester to perform on car TPMS testing. Operating instructions will be available at the station and the station judge will also assist with the basic functions of the tool.

**Station #9** This CBT station will require students to access the CBT simulator and get familiar with the function and operation. Access to Electude USA is provided free of charge, and instructors are asked to contact [darcy.wedel@electude.com](mailto:darcy.wedel@electude.com) by email, and provide a school name and number of students in the contest in order to receive access to the Simulator.

#### Station #10

For the SP/2 Safety station it would be helpful but **NOT MANDATORY** for the students to complete online training BEFORE the contest. To access training, instructors must do the following:

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Access to S/P2® e-learning program is provided free of charge to competitors in the SkillsUSA Competition. **BEFORE** the competition, instructors are asked to contact Kelly Zeih by email: [Kelly@sp2.org](mailto:Kelly@sp2.org) to receive their students' log-on information for the S/P2 website. Any questions, call toll free:

1-888-241-8332.

### Station #11

**ALL CONTESTANTS MUST BRING A RESUME FOR THIS STATION!** A **one page** is all that is required and it will be turned in at registration on Tuesday morning in a folder with competitor number on the folder. **Also attached to the 2018 updates is a Job description for a technician's position with Foley Equipment.** Competitors should look over this job description **before** they come to the competition to get familiar with it. **This is the job they will be interviewing for.**

### Station #12

The Ford IDS Scan Tool will **NOT** be used for on car Body Electrical diagnostics. Competitors will be given a **code** that they will need to diagnose using a pin point test using Ford service information.

**Note:** Tie Breaker stations have been established by the contest committee. In the event of a tie between competitors, the tie will be broken by the designated skill and written stations within the contest.

If you have questions pertaining to contest procedures or equipment, we can be reached at the numbers listed below.

Best Regards,

Ron Downing  
SkillsUSA KS Automotive Service Technology  
Co-Chair  
Pittsburg State University  
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Cell # 316-737 2913



**Foley Industries, Inc.**

### **Job Description**

**Job Title:** Technician  
**Department:** Service  
**Reports To:** Shop Manager /Service Manager  
**FLSA Status:** Non-Exempt

### **Job Summary**

Responsible for providing high quality rebuilds and repairs in order to respond to customer needs in a positive and timely manner and to ensure maximum value for work performed.

**Essential Functions, Duties, and Responsibilities**

All essential functions, duties, and other responsibilities will be performed in support of the Company's Mission, Vision, and Principles Statements and will include the following:

- Perform all levels of repair and preventive maintenance on vehicles and equipment.
- Diagnose and troubleshoot problems, give recommendations for repairs and make all critical machine and engine repairs and adjustments.
- Remove and install parts, disassemble and assemble components, and test and adjust assemblies with minimal supervision.
- Test and verify correct operation of all repairs and adjustments
- Communicate effectively and professionally with customers on their repairs
- Must be willing to work overtime as required by fluctuating workloads, available for after-hours calls as needed
- Complete all necessary documentation and follow up as required in a timely, orderly manner.
- Maintain work area, tools, and equipment to promote a clean and safe environment.
- Create a work environment that is considerate of the customer's needs.

**Other Duties and Responsibilities**

All employees are required to be productive during working time, and to support the overall operation of the business. Any employee may be assigned to any work outside his or her job classification on an as-needed basis, so long as the employee is qualified to perform the work. Upon request, employees will participate in cross-training to enable them to support other segments of the business.

**Supervisory Responsibilities**

None.

**Knowledge, Skills, and Abilities**

Must be able to read and comprehend specifications, service and parts literature, technical bulletins and other related publications. Must be able to communicate thoughts and ideas in both verbal and written form. Proficient computer skills and the ability to learn to effectively use company software – with training. Positive customer service. Basic mechanical knowledge including electrical and hydraulics. General knowledge of basic hand tools, air tools, precision measuring tools and instruments, diagnostic software, cranes and rigging equipment. Knowledge of use of various heavy equipment including, Caterpillar. Ability to read prints.

**Education and Experience**

High school diploma or equivalent preferred. Associate's degree (A.A.) or equivalent from two-year college or technical school ideal.

**Physical Demands**

(The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.) Regularly required to stand and use hands to finger, handle, or feel. Frequently required to reach with hands and arms. Occasionally required to walk; sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. Must regularly lift and/or move up to 10 pounds, frequently lift and/or move up to 25 pounds, and occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

**Work Environment**

(The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.) Frequent exposure to fumes or airborne particles. Exposure to wet and/or humid conditions; moving mechanical parts; high, precarious places; toxins or caustic chemicals; outside weather conditions; extreme cold; extreme heat; risk of electrical shock; and vibration. Noise level in the work environment is usually moderate.

**Equipment and/or Machinery Used**

Personal computers, fax machines, copiers, operation of various types of equipment and implements, diagnostic tooling, and various shop hand and electric tools.

**USING the Electude Simulator:**

The best way for students to gain experience using the Electude simulator is to go to the website below and sign-up for the free game version. Those who sign-up will be exposed to randomized faults and allowed to compete with others from around the world.

The online simulator is accessible from any online device, including tablets and cell phones, so students can practice from home or anywhere in a safe and secure environment. Teachers may also find the simulator useful as teaching tool in the class - it's a free resource to all schools in the US.



## Electude Simulator

**website:** <https://simulator.electude.com>

[Basic Overview - Electude Simulator](#)

[Guided Tour - How to perform diagnostics inside simulator](#)

When new users access the simulator for the first time, I recommend they begin by opening the tab to the left and watch the video tutorials (see attached screenshot). I would be pleased to provide webcast training to teachers and students on a specific day and time of your choosing. Please call to make arrangements. We could schedule 2 or three webcasts to accommodate teachers' schedules.

[www.electude.com](http://www.electude.com)

[Electude Video Profile](#)

[Electude YouTube Channel](#)

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