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## TMC MEETINGS

**RALEIGH, NC**  
September 15-19, 2019  
2019 Fall Meeting & National  
Technician Skills Competition  
Raleigh Convention Center

**ATLANTA, GA**  
February 24-27, 2020  
2020 Annual Meeting & Exhibit  
Georgia World Congress Center



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**TECHFORCE**  
FOUNDATION

September 4, 2019

Dear TMCFutureTech 2019 Contestant:

The Technology & Maintenance Council (TMC) is pleased to welcome you as a contestant for the trucking industry's sixth annual National Student Technician Competition —TMCFutureTech 2019 — sponsored by Tech Force Foundation. The event, which is being organized by TMC's Professional Technician Development Committee (PTDC), promises to be challenging, festive and informative. We're very glad to have you with us for this event.

Enclosed with this letter, please find a copy of the TMCFutureTech 2019 regulations, along with some background about the meeting itself. **Additionally, please find flyers from various companies that will help you prepare for the competition in advance.** Our event is being held at the Raleigh Convention Center in Raleigh, N.C., Sept. 16-17.

The contest features a one-day format. Accordingly, please plan to pick up your credentials at the TMC Registration Desk at the Raleigh Convention Center on Sunday, Sept. 15 between 9 am - 5 pm. There is a Welcome Reception just for students courtesy of TechForce Foundation on Sunday evening from 7- 8 pm at the Ballroom B Foyer. We will be asking selected students to provide video testimonials during the competition. We will schedule 5 minute interviews for Tuesday, Sept. 17 between 9 - 11 am. Those students randomly selected will be contacted by e-mail and/or text on Monday September 16th, with their assigned interview time.

The orientation, ASE written test, and skills stations will take place Monday, Sept. 16 from 7:30 am to 4 pm in the Competition Hall. Breakfast and Lunch will be provided on Monday. The winners will be announced during our Awards Banquet Sept. 17, which will be held from 7:30-9:30 pm. This year's PTDC Technician Training Fair will be held Tuesday from 8 am - 5 pm, continuing on Wednesday, Sept. 18 from approx. 8 am to Noon. The Fair is open to all registered attendees and contestants.

Should you have any additional questions, please feel free to call me directly at (703) 838-1776. On behalf of TMC, good luck and see you in Raleigh!

Robert Braswell  
TMC Executive Director

Enclosures



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# NATIONAL STUDENT TECHNICIAN COMPETITION RULE BOOK & GUIDELINES



**Technology & Maintenance Council**  
American Trucking Associations, Inc.





# National Student Technician Competition

## INTRODUCTION AND OVERVIEW

The Technology & Maintenance Council's National Student Technician Competition—TMCFutureTech—is an annual event held in conjunction with TMC's Fall Meeting. TMCFutureTech 2019 — sponsored by Tech Force Foundation — takes place September 16-17 in Raleigh, N.C., and is organized by TMC's Professional Technician Development Committee (PTDC). This is the sixth year we are holding a student competition for post-secondary students who are not yet professional technicians.

NOTE: The competition is open to any post-secondary student (age 18 or older) currently enrolled in a diesel technician training program or working as a professional technician but having graduated less than six months from a diesel technician training program.

## GENERAL RULES

### DESCRIPTION

The student competition takes place on Monday, Sept. 16. The event will conclude with TMC's Awards Banquet on Tuesday, Sept. 17. Additionally, the PTDC will also conduct a Technician Training Fair in conjunction with the competition. Sessions will be Tuesday from 8 am - 5 pm, continuing on Wednesday, Sept. 18 from approx. 8 am to Noon. Training fair participants will receive TMC Certificates of Attendance for all sessions completed.





## WHO MAY COMPETE

TMC's National Student Technician Competition and Technician Training Fair are closed events. You must be a registered meeting or competition attendee to attend either event. The Student Competition is limited to post-secondary students studying to be a commercial vehicle technician. The registration fee for students is \$200.

## REGISTRATION

Online registration forms can be found at <http://tmcfall.trucking.org>. Registration must be received by August 16, 2019; extensions may be permitted if so announced by TMC. Only preregistered contestants will be eligible to compete. Contestants will be sent a confirmation of their registration and housing accommodations in advance of the event.

## CONTEST LOCATION

TMCFutureTech 2019 and the PTDC Technician Training Fair will be held at the Raleigh Convention Center. The address for the facility is 500 South Salisbury Street, Raleigh, NC 27601. The Marriott Raleigh City Center is TMC's host hotel. Registration and badge pickup will be located at the Raleigh Convention Center.

## CONTEST FORMAT

The National Student Technician Competition and Technician Training Fair will be held Sept. 16-17 in conjunction with TMC's Fall Meeting. The Student Competition will be held on Monday from 7:30 am - 4 pm in the Competition Hall. Please arrive at the Exhibit Hall by 7:15 am for orientation and competition. Contest awards will be presented at the Tuesday Awards Banquet in Ballroom BC of the Raleigh Convention Center.



## PROPER ATTIRE

All contestants must wear work appropriate long pants and work shoes meeting accepted safety standards. You can wear your school or sponsor shirt during the competition. Other safety-related items, such as protective eye wear, will be provided by TMC on an as needed basis at each skills station.



## SAFETY

Safety glasses with side shields (provided by TMC) must be worn at all times during the competition, unless otherwise directed by a specific station chairman or judge. Standard shop safety procedures must be followed at all times. All spills must be cleaned up immediately. Any accident or injury must be reported to the section judge.

**NOTE:** Contestants may bring their own personal protective equipment for use during the competition.

## AGREEMENT AND RELEASE

In consideration of being permitted to participate in “TMC’s National Student Technician Competition—TMCFutureTech 2019” and be eligible for awards offered, participants hereby stipulate and agree to the following:

1. Contestant acknowledges that he or she is not in the employ of American Trucking Associations, Inc. (ATA).
2. Both as to himself or herself and his or her heirs and personal representatives, contestant releases TMC/ATA, its directors, employees, agents and/or any of its affiliates from any and all liability and any right of action that may arise from any damage or injury which may be received while attending or participating in said “TMC National Technician Skills Competition—TMCFutureTech 2019.”
3. Contestant grants TMC/ATA and its designated agencies exclusive rights to make use of information about himself or herself, along with photographs subsequently taken under TMC/ATA’s direction, in publicity and advertising activities. Contestant further agrees to make himself or herself available for publicity enterprises arranged by TMC/ATA, with newspaper/magazine/media writers and radio and television personnel.
4. Contestant will be bound by all orders, rules and regulations governing “TMC’s National Technician Skills Competition—TMCFutureTech 2019” while participating in said competition.

Technician certifies he or she is a post-secondary student (age 18 or older) currently enrolled in a diesel technician training program or working as a professional technician but having graduated less than six months from a diesel technician training program.

This agreement and release was part of the Contestant Registration Form which all contestants used to register for the competition.

## CONTESTANTS WITH SPECIAL NEEDS

Every effort will be made to accommodate contestants with special needs. These needs must be identified on the contest registration form prior to competition.

## TOOLS AND PARTS

All tools, manuals, and equipment will be provided by Competition organizers. Contestants may bring their own personal hand-held multimeter and flashlight for use during the competition if they so choose.



## SCORING

The Competition is designed to measure thorough knowledge of medium- and heavy-duty commercial vehicles, including both theory and practical application. The event will include a written test covering the various competition areas. The test will be prepared and administered by the National Institute for Automotive Service Excellence (ASE). The ASE-administered Written Test will count 100 points; everything else counts for 100 points per station.

Tiebreakers in individual workstation and/or final scores are predetermined by the TMCFutureTech competition committee prior to the competition and reviewed annually based on any changes in workstations. Each station will be broken by the highest score in specific workstation, related written test categories and/or the total pre-qualification scores.

Scoring on the hands-on portion of the competition shall be done by workstation judges using a detailed station score sheet developed by the station technical committee. Judging scores will reflect an assessment of technical skills and knowledge, accuracy, and quality of workmanship. All decisions by the station judge chairman will be final.

Scoring for each of the skill stations will be based on 100 points.

## PRIZES

All contestants will receive an official Competition cap and a gift bag provided by Competition sponsors. Various prizes will be awarded for first, second and third place as well as to station winners. (Prizes subject to change without notice.)

## JUDGING GUIDELINES

Judges will consist of recognized experts within each contest area. Each Skill Station Evaluation Sheet and task will be prepared by individual station chairman and that Station's committee. Point assessment for each task will be specifically listed as part of the contest evaluation sheet to easily gauge contestant ability. Those points will be totaled by the individual contest chair or assigned individual to achieve possible maximum 100 point for that contest. Contestant questions regarding individual issues will be brought immediately to attention of the contest chair. Should

personal/professional recognition of contestant be known by the judge, that judge is to be recused and replaced with another judge for that contestant evaluation procedure. Judge can resume normal responsibilities after that contestant has finished specific evaluation.

## SKILL STATION GUIDELINES

The Student Competition Skill Stations will consist of a total of 15 skill stations. The stations will be:

- FT1: Written Test (Two rotations)
- FT2: Fasteners
- FT3: RP Manuals
- FT4: Service Information
- FT5: Wiring Diagrams
- FT6: PMI
- FT7: Electrical Circuits
- FT8: Safety & Environmental
- FT9: Lubricants & Fuels
- FT10: Precision Measuring
- FT11: Coolants & DEF
- FT12: Trailer Lighting
- FT13: Trailer Wheel End
- FT14: Aftertreatment
- FT15: Drivebelts



Twenty-three minutes will be allotted to each cycle. Orientation, instructions and task completion will occur within this time allotment. At end of 23 minutes, with appropriate signal, contestants will be escorted to next contest within rotation.

Communication between contestants and with spectators outside of the immediate Skills Station area is prohibited. Spectators are to be in viewing area outside of the skill station. Authorized individuals may enter individual skill station for means of documenting or administration of contest activity. Possession and use of cell phones, portable data assistants (PDAs) or other camera/communication devices by contestants in the contest area is prohibited during the competition. Once all contestants have completed the skill station challenge, contestants will be held at said skill station until it is determined all scores have been received and properly recorded.

## What to Expect at Each Skill Station

- FT1. **Written Test** — This is a 100-question written test covering the various competition areas. The test will be prepared and administered by the National Institute for Automotive Service Excellence (ASE).
- FT2. **Fasteners** — Each technician will be given a tray with assorted fasteners, rivets, and fittings. The contestants will be provided questions on the fastener, fittings, or rivets. Reference materials with information to help technicians answer some of the multiple choice questions. Tools will be provided to help technicians measure and identify

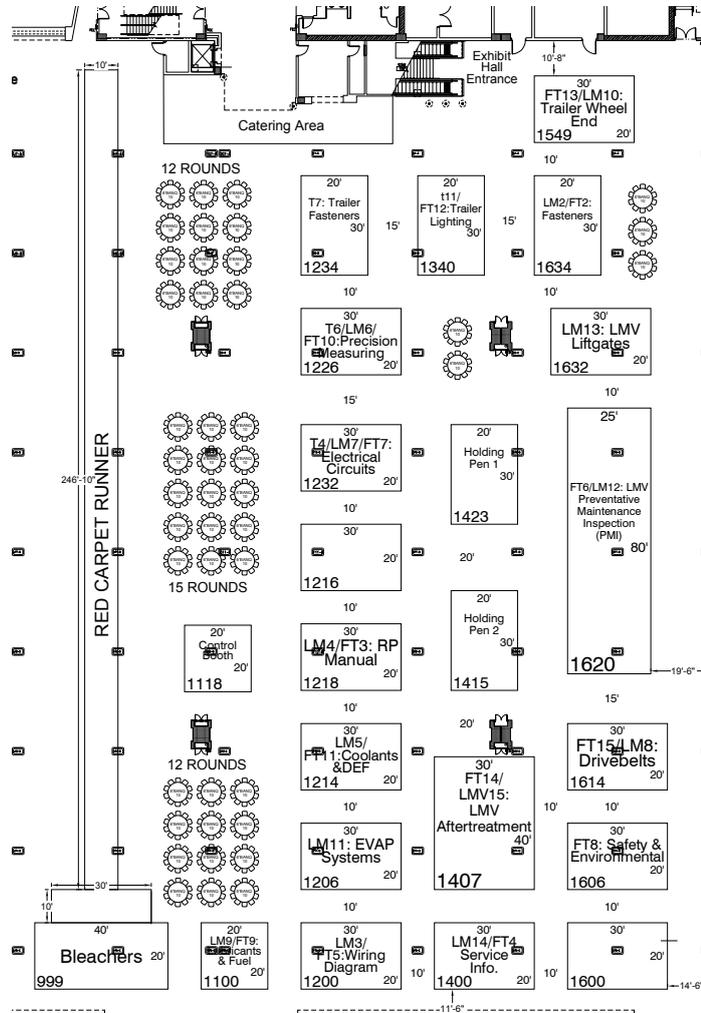
the fasteners, fittings, and rivets within the tray and transfer the correct answer onto a separate answer sheet.

- FT3. **RP Manual** — This challenge will consist of answering written questions based on sections of TMC's *Recommended Practices Manual* and stating which RP provided you the answer.
- FT4. **Service Information** — Technicians should be able to look up wiring schematics and pinpointing specific information based on a series of scenarios. Using computers, technicians will use the MOTOR FleetCross Truck Service on-line program to look up and answer 20 wiring diagram related questions in the time allotted.
- FT5. **Wiring Diagrams** — Technicians should be able to look up wiring schematics and pinpointing specific information based on a series of scenarios. Using computers, technicians will use the MOTOR FleetCross Truck Service on-line program to look up and answer 20 wiring diagram related questions in the time allotted.
- FT6. **Preventive Maintenance Inspection (PMI)**: Contestants will take a written and practical test on their knowledge of Federal Motor Vehicle Safety Standards and Regulations where it pertains to the Preventive Maintenance Inspections on a Class 8 tractor subject to Part 396.3 of the FMCSA requirements.
- FT7. **Electrical Circuits** — Technicians will be asked to identify and check resistors, test and record the voltage values, measure voltage drops, and determine current loads on a test board. Technicians may use their own multimeter or a Fluke 88 that will be provided.
- FT8. **Safety & Environmental** — This station will test technician knowledge of the general guidelines and practices for dealing with hazardous materials, as well as safety protocols/regulations in a shop environment.
- FT9. **Lubricants and Fuels** — This station will test knowledge of lubricants and fuels along with diagnostic-related issues.
- FT10. **Precision Measuring** — This station will ask the contestant to accurately measure various components and document the dimensions. There will also be exercises on reading micrometers and calculating clearances. Both standard english and metric micrometers will be used.
- FT11. **Coolants/Diesel Exhaust Fluid**— This station will assess a technician's knowledge of current coolant technologies as well as diesel exhaust fluid (DEF) and DEF delivery systems.
- FT12. **Trailer Lighting**—This station will challenge students' knowledge of trailer lighting and electrical systems. You are required to check all safety lighting for proper operation, and FMVSS 108 legal. You are required to diagnose any safety lighting problems and indicate whether the problem is lighting related or wiring related. You are required to verbally explain each task you are performing.
- FT13. **Trailer Wheel End** — Troubleshoot, service and repair wheel ends. Contestants will answer questions and complete tasks relating to the identification, inspection, installation, and repair of wheel end components found on semi-trailers. Contestants must be able to use torque wrenches, dial indicators, and other common hand tools used in the installation and repair of wheel end components.
- FT14. **Aftertreatment**—This station will challenge technicians' knowledge of emissions aftertreatment systems. The station starts with assessing component identification knowledge of the aftertreatment system. This activity prepares participants for the analytical thinking segment of this station and challenges them to use several resources that would be normally used during emission diagnostics.



# FLOORPLAN

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Monday stations will be held in the Exhibit Hall A-C of the Raleigh Convention Center.

NOTE: Final floorplan subject to change without notice.



FT15. **Drivebelts** — Diagnose, service, and repair drivebelt system issues and failures. This station will test a technician's general system knowledge along with knowledge of problem areas/ failure modes associated with drivebelt systems. Technicians must complete a combination system inspection / test covering their knowledge of RP 320C, *Inspection of Maintenance and Tension of Accessory Belt Drive Systems*. They will identify failure modes and corrective actions of seven most commonly seen belt failures. All equipment necessary for the completion of all objectives will be located at each work station.

## **STUDENT ROTATION**

Students will proceed through the competition by specified rotation. Rotation schedule will be provided onsite at the event.

## **AFTER THE CONTEST IS OVER. . .**

There will be a debriefing session on Monday immediately following the competition, after which contestants are welcome to observe the National Technician Skills Competition. Additionally, all contestants are invited to attend any of our special training sessions Tuesday morning as part of TMC's Technician Training Fair. See the onsite meeting program for more information.

NOTE: We will be asking students to provide video testimonials during the competition. Due to time constraints, not all students will be interviewed, but a number will be randomly selected. Those selected will be contacted by e-mail and/or text on Monday, September 16th, with their assigned interview time. Interviews will be scheduled for approximately 5 minutes each on Tuesday, Sept. 17.

## **AWARDS BANQUET**

Our awards banquet for TMC SuperTech 2019 will be held on Tues., Sept. 17 from 7:30 to 9:30 pm. Presentations will be made to our overall first, second and third place winners as well as to those who placed first within each individual skills station. All contestants are invited to attend!

## **FOR MORE INFORMATION**

For more information, or to get answers to a question that still has not been answered for you, please feel free to visit our website at <http://tmcfall.trucking.org> or call TMC offices at (703) 838-1763.







**Technology & Maintenance Council**  
American Trucking Associations, Inc.

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**ATA BUSINESS SOLUTIONS**



**COMPETITION  
SUPPLEMENTAL  
TRAINING  
MATERIALS**



The **Truck-Lite Training Institute** is an online series of technical courses that were developed to educate and train the highest caliber technicians and parts associates. The courses focus on product knowledge, technical expertise, diagnostics and systems solutions.

Trainees can access the **Truck-Lite Training Institute** on desktops, tablets and mobile devices from anywhere with an internet connection. There is no software to install and nothing to download. Internet access is all you need!

The **Master Lighting and Harness Technician** is the first in the **Truck-Lite Training Institute** series. Modules require 10–40 minutes to complete and contain test questions to verify participants' comprehension and retention. A certificate of completion, along with a promotional incentive, is available when this series is successfully completed. The course includes the following modules:

- **Basics in Electricity:** Definitions; major concepts; wire calculations; voltage drops  
*(allow 20 to 30 minutes to complete)*
- **Lighting Evolution:** A walk through time; the origin of Truck-Lite; evolution of bulb-replaceable, sealed and LED lighting; return on investment  
*(allow 15 to 25 minutes to complete)*
- **Lighting Fundamentals:** Why lights fail; troubleshooting failures; tips to prolong lighting life; product pitfalls  
*(allow 30 to 40 minutes to complete)*
- **LED Lighting Performance:** Popular lighting terms and definitions; best measurement of LED lighting  
*(allow 10 to 15 minutes to complete)*
- **Harness Fundamentals:** Harness basics and color codes; methods for diagnosing failures; proven repair methods  
*(allow 30 to 40 minutes to complete)*
- **Regulations and Questions:** Federal lighting requirements; SAE ID codes; common legal questions  
*(allow 10 to 20 minutes to complete)*



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Truck-Lite has partnered with Purkeys, a leader in electrical advisement and solutions for the commercial trucking industry, to develop **Fundamentals of Multimeter Training**, which offers diagnostic training using an Extech electrical multi-meter (allow 45 to 60 minutes to complete).

Truck-Lite has also partnered with 3M, a global leader in innovative solutions for both consumer and commercial industries, to provide **Best Practices with Reflective Tape**. In this course, users will become familiar with reflective materials regulations, uses, application/removal and care and maintenance regarding Truck-Lite's reflective tape product offering (allow 15 to 25 minutes to complete).

**The Truck-Lite Training Institute** is completely free and available to all Truck-Lite direct customers and fleets. Visit [www.truck-lite.com/tti](http://www.truck-lite.com/tti) to get started today!

# PTDC SUPERTECH2019

## Service Information Preparation!

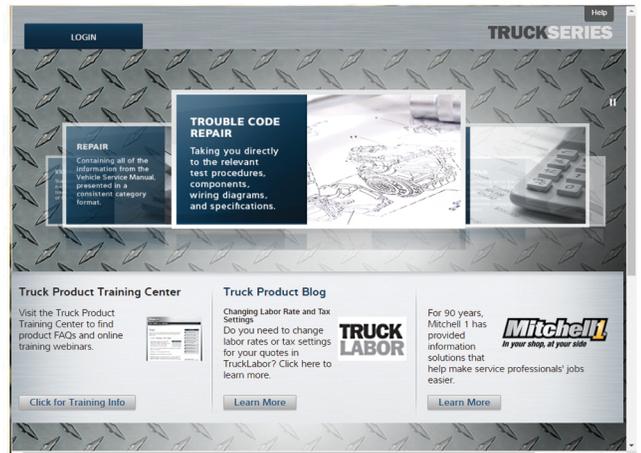
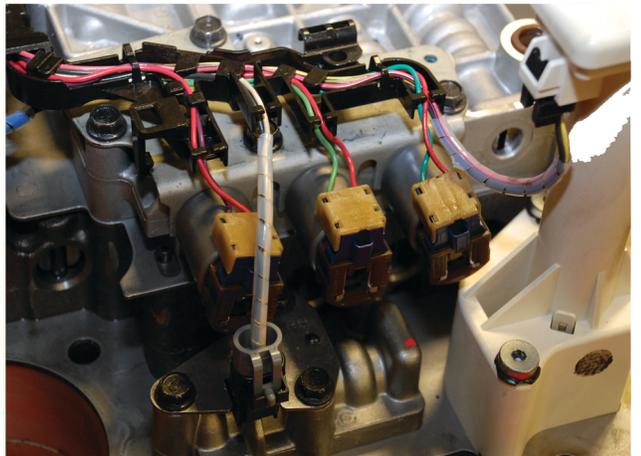
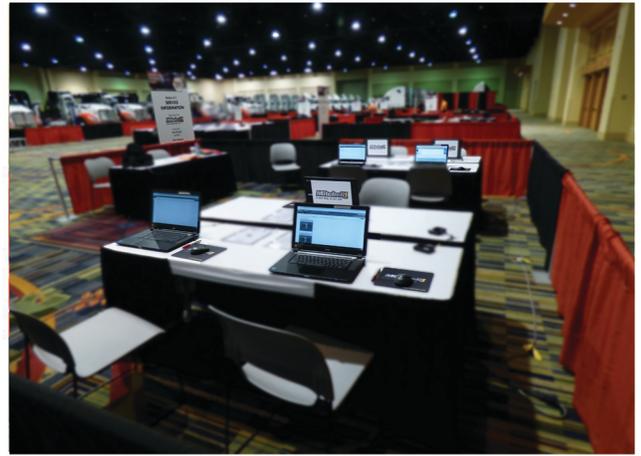
Access your 14-day free practice session to Truck Series. Be prepared for the Service Information Skill Station at the upcoming TMC SuperTech competition.

Log on to: <https://truck.prodemand.com>

User Name: Orlando

Password: SuperFinals

Valid Only: 8/29 to 9/17





Access to S/P2® e-learning program is provided free of charge to competitors in the TMC Supertech 2019 and TMC Futuretech 2019 Competition. BEFORE the competition, instructors/competitors are asked to contact S/P2 by email: [info@sp2.org](mailto:info@sp2.org) to receive their log-on information for the S/P2 website.

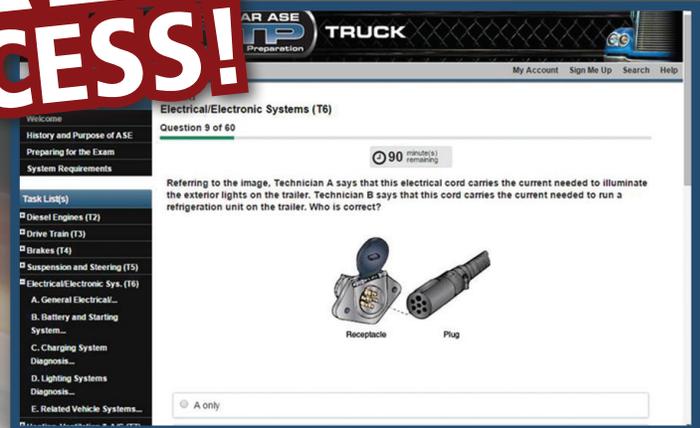
Any questions, call toll free: 1-888-241-8332.

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### Instructions:

- Click on "Login" in the upper right hand corner of the webpage
- Click on "create an account"
- Create your profile & your login information
- Click submit
- In the Learning Code box enter **LCTRCKDEMO**
- Under Ecourses choose the course you are interested in and follow the instructions on the screen.

(If you already have a Cengage account, select "Login" and enter your username and password. Once in your account, click on "Add a Learning Code" and enter code **LCTRCKDEMO**.)

If you require technical assistance, contact Andrew Ouimet at [andrew.ouimet@cengage.com](mailto:andrew.ouimet@cengage.com)



## FleetCross Installation Instructions (desktop)

### Prerequisites:

1. Operating System: Windows 7 or newer
2. Microsoft .NET Framework 4.5 or newer
3. Internet Connectivity
4. A valid username and password (provided below)
5. Microsoft Internet Explorer (to use the automated installer described below)

### To begin:

1. For installation instructions go to [http://v4.fleetcross.net/installation\\_instructions/install.htm](http://v4.fleetcross.net/installation_instructions/install.htm) and proceed step by step.
2. At the FleetCross login screen enter the following:
  - a. Username: **supertech2019**
  - b. Password: **2019supertech** (*password is case sensitive*)

If you have any problems with the installation, please call: **1-800-4A-MOTOR (option 4)**

**Demo Videos:** [Parts](#) > [Labor](#) > [Service](#) > [Job List](#) > [All](#)

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