

MOBILE ELECTRONICS INSTALLATION (VIRTUAL)



PURPOSE

To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of mobile electronics installation. First, download and review the General Regulations at: <http://updates.skillsusa.org>.

ELIGIBILITY

Open to active SkillsUSA members enrolled in technology programs that include mobile electronics installations.

CLOTHING REQUIREMENTS

Class E: Contest Specific — Business Casual

- Official SkillsUSA white polo shirt.
- Black dress slacks (accompanied by black dress socks or black or skin-tone seamless hose) or black dress skirt (knee-length, accompanied by black or skin-tone seamless hose).

Contest Clothing Notes (Apply ONLY to Virtual Competitions):

- Official SkillsUSA Competition Clothing recommended but NOT required.
- Contestant clothing options include the following:
 - Official Competition Clothing.
 - Trade Appropriate Clothing.
 - Professional Dress.
 - Business Casual.
- Clothing must meet industry safety standards.
- No identification of the contestant, school or state is allowed on clothing.
- No offensive, vulgar or inappropriate images or text are allowed on contestants' clothing.
- No shorts or sleeveless shirts are allowed.
- Skirts must be at least knee-length.

- Proper Personal Protective Equipment (PPE) must be worn by contestant to meet all state, local and school requirements due to COVID-19.
- Scoring deductions may only be given and/or disqualification of contestant if clothing safety standards are not met.

These regulations refer to clothing items that are pictured and described at: www.skillsusastore.org. If you have questions about clothing or other logo items, call 1-888-501-2183.

Note: Contestants must wear their official contest clothing to the contest orientation meeting.

EQUIPMENT AND MATERIALS

Supplied by the contestant:

1. Computer with high-speed internet capability and camera to use applications such as Zoom, Teams, etc. The minimum recommended internet bandwidth speeds for joining Zoom meetings, accessing on-demand curriculum and other online operations is 2.0 Mbps up and down. You can test your current internet speeds by following this link: www.speedtest.net. Allow the page to load and click on GO.
2. A secondary camera(s) may be required to provide judges with the ability to view contestants from different angles. Additional camera requirements will be located on the SkillsUSA website at <http://updates.skillsusa.org>.
3. A contest Proctor will be required to be on site to assist judges. A local industry expert is preferred to serve as the Proctor and shall not be an individual who has been involved with the training of the contestant(s). The Proctor will serve as the on-site "hands and eyes" for the judges. Proctor will follow instructions from the judges for safety and operations related to the competition. Proctor may be asked by judges to perform several tasks such as operating a portable camera to show specific components or steps, measure parts, or any task that will provide judges with information needed to assist in accurate scoring of the contestant's work or presentation. However, the Proctor shall

not serve as a judge nor have any influence on contestant scores.

4. The contestant's instructor or advisor shall be on-site to observe all competition activities to ensure a safe and healthy competition experience for all participants. That instructor or advisor will not be allowed to interact or interfere with the competitor unless a safety issue arises that requires interaction. Any other support or interaction between the contestant and the instructor/advisor will result in disqualification.
5. All competitors must create a one-page résumé and submit an electronic copy to the technical committee chair at least seven (7) days in advance of the competition. Failure to do so will result in a 10-point penalty. Instructions for submission of the electronic résumé copy will be provided on the SkillsUSA website at <http://updates.skillsusa.org>.
6. Pencils
7. Safety glasses
8. Calculator
9. Soldering iron
10. Wire crimpers (Kline type)
11. Wire strippers
12. Digital multimeter (DMM)
13. Necessary materials, schematics and equipment required for the contest

Note: Check the Contest Guidelines and/or the updates page on the SkillsUSA website at <http://updates.skillsusa.org>.

SCOPE OF THE CONTEST

1. The scope of the contest will be consistent with the industry standards outlined in the competencies listed for the Mobile Electronics Certified Professional Basic Installation Technician exam produced by the Consumer Electronics Association (CEA). See www.mecp.com. Following are the major skills areas:

Section 1 — Basic and Advanced Electrical

- a. Electrical laws and formulas for the mobile electronics environment
- b. Electrical components
- c. Basic electrical troubleshooting
- d. Filters

- e. Relays, batteries and cable
- f. Semiconductors
- g. Automotive, electrical and charging systems
- h. Troubleshooting

Section 2 — Mobile Electronics Installation Knowledge and Techniques

- a. Basic installation practices
- b. Noise troubleshooting
- c. Battery troubleshooting
- d. Meters and test equipment
- e. General installation and equipment
- f. Shop safety
- g. Troubleshooting guide

Section 3 — Introduction to Autosound, Security, Wireless and Navigation

- a. Introduction to audio — autosound basics
- b. Introduction to security
- c. Wireless communications: the basics of installation
- d. Navigation basics
- e. Satellite radio

The current MECP Basic Mobile Electronics Installer competency standards are available on the web at: www.mecp.com.

2. Contestants will demonstrate their ability to perform jobs or skills selected from the competencies listed below as determined by the SkillsUSA Championships Mobile Electronics Installation Technical Committee.
3. **Installing, Diagnosing and Servicing:** This section of the competition consists of several test station activities. Contestants must successfully complete assigned tasks at each station. The tasks are designed to provide a variety of challenges based on the MECP recommended practices. Approximately 45 minutes is allowed at each station.

Knowledge Performance

The written test is based on the Mobile Electronics Certified Professional Basic Installation Technician exam produced by the Consumer Electronics Association (CEA). See www.mecp.com.

Skill Performance

The event includes a professional interview and five hands-on applications that include taking electrical measurements, installing consumer electronic equipment in a mobile environment, soldering, working with relay circuits and troubleshooting electronic circuitry.

Standards and Competencies

Note for Virtual Competitions: Contestants may not be required to perform all the standards and competencies listed in this section. However, contestants should be prepared to perform components in all areas. Prior to the competition, the technical committee may determine which standards and competencies contestants will be perform for the virtual contests. The technical committee will determine if additional information is needed for contestants prior to the competition. These changes will be posted on the SkillsUSA Championships contest update website at: <http://updates.skillsusa.org>.

MEI 1.0 — Charging and Electrical System Measurements

Comprised of one task associated with using standard test instruments to establish a State of Health report for a given vehicle.

MEI 2.0 — Removing and Replacing Head Units

Comprised of one task related to removing an existing head unit and replacing it with an OEM upgrade head unit.

MEI 3.0 — Installing Audio Amplifiers

Comprised of one task related to physically adding an audio amplifier to an existing mobile audio installation and configuring it for safe usage by the customer.

MEI 4.0 — Using Relays

Comprised of one task requiring the contestant to design and configure a relay-based circuit to perform the requested mobile installation related to upgrading consumer electronic systems in a vehicle.

MEI 5.0 — Locating and Diagnosing Open and Short Circuits

Comprised of one task related to locating and repairing an open circuit and/or a short circuit condition. Judged on ability to locate, identify and repair all malfunctions; and adherence to safety and ESD procedures.

MEI 6.0 — Electronics Installer Theory Exam

Contestants will take an examination covering their knowledge of basic and advanced electrical theory, installation knowledge and techniques, and mobile consumer electronics systems. Questions cover basic 12-volt circuits and devices, mobile consumer electronics systems and subsystems (sound, security, wireless and navigation), and basic mobile electronics diagnostic and troubleshooting questions. The exam consists of multiple-choice questions and lasts up to two hours.

MEI 7.0 — Customer Service

Contestants will respond to questions related to providing professional customer service techniques.

MEI 8.0 — Personal Interview

A business/industry preliminary interview will be conducted with an industry professional, focusing on the customer service culture.

MEI 9.0 — Determining Winners

Winners will be determined based on total scores, including diagnosis and troubleshooting, soldering, assembly, customer service and personal interview interaction, and theory exam.

MEI 10.0 — Items Evaluated

Relative point values for each item below will be determined by the technical committee.

- 10.1 Installing, diagnosing and service scoring
 - 10.1.1 Read and understand the manufacturer's training literature about the device
 - 10.1.2 Use test equipment to make specified measurements
 - 10.1.3 Follow recommended manufacturer's sequence of installation procedures and troubleshooting practices
 - 10.1.4 Identify the scope of the task or problem
 - 10.1.5 Identify any defective component
- 10.2 Practical Skills
 - 10.2.1 Soldering techniques
 - 10.2.2 Workmanship and assembly techniques
 - 10.2.3 Final operation of installations tasks
 - 10.2.4 Ability to locate, identify and/or repair malfunctions
 - 10.2.5 Safety and ESD procedures
- 10.3 Customer Service
- 10.4 Personal Interview
- 10.5 Written Exam