



## Instrumentation and Process Controls

Information is subject to change check back often.

3/11/2024

---

### DATE, TIME & LOCATION

The 2024 State SkillsUSA Contest will be held Monday, April 22nd at the Tulsa Cox Center. Contestants need to check into their contest site at 8:00am. Contestants will attend contest briefing Sunday, April 21st, 2024 at 5pm in the contests area.

NO Substitutions will be allowed this year after April 5th

### REFERENCE MATERIAL

- Calibration: A Technician's Guide, Mike Cable, ISA
- Troubleshooting: A Technician's Guide, William L Mostia, ISA
- Loop Checking: A Technician's Guide, Harley M. Jeffery, ISA
- Start-Up: A Technician's Guide, Diane R. Barkin, ISA
- Instrumentation and Process Control, Franklyn W. Kirk, Thomas A. Weedon, Philip Kirk, ATP

### TESTING

Professional Development testing will be open March 13th-April 9th. This will become part of the contestant's overall score. Please work with your school's testing liaison to get the test proctored during the testing window. No provisions are being made for make-up testing on-site.

### LUNCH

Students will be expected to remain in the contest area until finished and/or released by the chair of the contest. Box lunches are being provided as part of this contest. The student may also bring money for drinks and snacks to use at the vending machines and concession stands.

### RESUME

Each contestant will be required to bring his or her printed resume. It will be presented to the judges upon entry to the contest area. A deduction will be applied to your overall score if you do not have a resume. **There will be a 15 point deduction for not having it.**

### CONTEST CLOTHING



## Instrumentation and Process Controls

Official khaki short sleeve work shirt and pants, black or brown leather work shoes, and safety glasses with clear lenses and 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.) **There will be a 15 point deduction for not have it.**

### TOOLS AND SUPPLIES

Contestants will need to bring the following tools and materials.

- PLC with Analog Input and Output card for mA
- A Process DMM (ex Fluke 789)
- HMI or simulator on Computer
- Safety glasses
- If you have your own HART Communicator that will help but we will have some.
- #2 lead Pencils
- Snacks/Bottled Water

### INDUSTRY AWARDS

Instructors are requested to secure a minimum of \$50.00 in prizes for each student that you bring to the State SkillsUSA Championships. Please contact for details and to let [Matthew.Maynard@francistuttle.edu](mailto:Matthew.Maynard@francistuttle.edu) know of industry awards you have secured. These awards should be labeled with the name, address, and contact person for the donating industry so that the contestant they are awarded to can send an appropriate expression of his or her appreciation.

### AWARDS CEREMONY

Contest winners will be recognized during the Awards Assembly at 9:00 a.m. on Tuesday, April 23rd at the Tulsa Convention Center. Official SkillsUSA attire is required. According to the SkillsUSA Championships Technical Standards, clothing requirements are as follows: "For men: SkillsUSA official attire: Official red blazer or jacket, black dress slacks, white dress shirt, plain black tie with no pattern or SkillsUSA tie, black socks and black shoes. For women: Official red blazer or jacket, black dress slacks or skirt, with a businesslike white, collarless blouse or white blouse with a small, plain collar that may not extend onto the lapels of the blazer black sheer or skin-tone hose and black shoes. Any contest winner who is not in official SkillsUSA attire will not be permitted on stage.



## Instrumentation and Process Controls

### CONTEST DESCRIPTION AND SCORING

The contest will consist of an online SkillsUSA (PDP) knowledge test, online written test covering knowledge of ISA body of knowledge for [CST Associate Certificate](#).

**Calibration of Transmitters** contestants will be observe on proper safety procedures when dealing with real process equipment, Establish communications with transmitters using a HART communicator and Process meter, Diagnose and fix devices to make them operate as expected, and Demonstrate knowledge of basic level, pressure, and temperature measurement principles.

**Tuning a Control Loop-Contestants** will be provided with a physical simulation and a P&ID. Contestants will be observed on interpretation of instrumentation drawings, Create a plc program and implement the logic for the Process, Tune the loop use PLC software, and Commission the entire system to confirm correct operation. Plus have an HMI showing the process and be able to tune using it and time.

**Tube Bending-** Contests will be observed using hand tube benders, calculating bend offset lengths, maintaining spacing when making parallel tubing runs, making offset, rolling offset, parallel, complex, segmented bends, and proper termination to a connection.

#### Specific scores:

Calibration of Transmitters	100 pts
Tuning of loop	100 pts
Tube Bending	50 pts
Written Test	100 pts

The SkillsUSA PDP is 2.5% of the contest score.

The written knowledge test is 10% of the contest score.

The technical skills portion of the contest is 87.5% of the contest score.

The above scoring is consistent with the national SkillsUSA competition.

Safety Penalty -50 pts, Clothing Penalty -15 and Resume Penalty -15

**For additional information about state contest, please contact Matthew Maynard at 405-717-4914 or [Matthew.Maynard@francistuttle.edu](mailto:Matthew.Maynard@francistuttle.edu)**



## **Instrumentation and Process Controls**



## **Instrumentation and Process Controls**