



Robotics & Automation Contest Information

Tentative-Information is subject to change, check back often.

NO SUBSTITUTIONS WILL BE ALLOWED AFTER FRIDAY, March 28th, 2025

THERE WILL BE NO SUBSTITUTIONS ALLOWED ON-SITE AT THE CONFERENCE*

PURPOSE

To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of Robotics and Automation.

TIME/DATE/LOCATIONS

State SkillsUSA Robotics and Automation Contest will be held Monday, April 28nd, at the Arvest Business Center(formerly know as the Cox Business Center). Contest starts at 8am.

Print the General Instructions for each of your competitors and have them become acquainted with the competition BEFORE arriving at the conference.

TESTING

Contestants will be judged on their SkillsUSA knowledge through Professional Development test. Testing will be completed online and proctored through their technology centers. Online testing opens March 14, 2025, and closes April 4, 2025. No provisions are being made for make-up testing on-site.

RESUME- Change to submission type please for 2025 please read

All contestants will submit a digital resume prior to contest day. Contestants will receive an email to the address used to register the contestant for contest with instructions and link to access the SkillsUSA Competitor Portal page. The email will contain contestant's username and contestant number, which are required to login to the Competitor Portal.

Deadline to submit resume is April 22, 2025

CLOTHING REQUIRMENTS

All students will be required to wear appropriate clothing representative of their occupation. No school logos or anything that shows your name allowed on clothing. Safety glasses are required at all times while in the contest area.

CONTESTANT MEETING

PLEASE NOTE: Contestants will need to move into the Exhibit Hall at 2 p.m. Sunday to set up equipment and allow maximum time for the contest on Monday. No guarantee of equipment safety can be made, but a security guard will be on hand all night with orders to allow no one in until state staff arrive.

Present this memo to security or state staff as your pass to accompany your contestants to the Robotics and Automation Technology contest area only.

INDUSTRY AWARDS

As agreed at August Conference each instructor is requested to secure a minimum of \$50 in prizes for each student that you bring to the State SkillsUSA Championships. 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.

Prizes are the responsibility of the individual contests. Prizes are not guaranteed and are not supplied at the SkillsUSA Oklahoma state level.

Please bring prizes to the industry awards area at the Arvest Convention Center Conference Hall, Sunday, April 27th between 12-4pm or Monday, April 28th between 8am-4pm.

AWARDS CEREMONY

Winners will be recognized at the General Session on Tuesday morning, April 29th at 9am.

All competitors must wear official SkillsUSA dress to the Awards Session, where winners are announced. Competitors who are not dressed appropriately or lack official attire will be denied access to the awards stage. Students must be present when their contest is announced. If a student is improperly dressed, absent, or misses their contest being called, the production will not be paused for any reason, and they will forfeit their opportunity to go on stage to receive the award. No exceptions will be made. No hats or sunglasses will be allowed to be worn on stage.

Official dress for men: Official blazer, jacket or sweater; black dress slacks; white dress shirt; plain black tie with no pattern or SkillsUSA black tie; black socks and black shoes.

Official dress for women: Official blazer, jacket or sweater; black dress slacks or knee-length skirt with business like white, collarless blouse or white blouse with small, plain collar that may not extend onto the lapels of the blazer, and black dress shoes.

TOOLS and SUPPLIES

Rather than require exact equipment (some suggestions are presented below), the Technical Committee will specify a list of capabilities and functions the teams may be required to demonstrate. This list should remain consistent from year to year and represent typical process to be performed and general capabilities and let each participant bring sufficient equipment to complete the process to given specifications. Exact performance required at the competition will vary yearly but will be drawn from the capabilities specified.

SUPPLIED BY CONTESTANT TEAMS:

Equipment sufficient to fulfill the manufacturer's requirements. Required equipment will vary with the individual abilities of specific equipment, but a suggested list is presented below.

Servo Robot with controller and programming software

Appropriate tools

- VOLT-OHM-MILLIMETER (VOM OR DMM)
- MANUALS FOR EQUIPMENT
- EYE PROTECTION WITH SIDE SHIELDS
- ROLL OF MASKING TAPE
- PENCILS / PENS

PROCESS SPECIFICATIONS

- An LED must be properly wired into the robot controller
- An inductive sensor must be properly wired into the robot controller
- All program lines must be properly named to identify their action for t-shooting
- The robot must begin in the HOME position
- Depalletize 6 blocks into metallic and non-metallic stacks
- When a metallic block is detected, a LED must illuminate for 1 second before the block is placed
- The metallic blocks must be stacked into one tower, and non-metallic blocks into another tower

- The metallic blocks have a 10 mm hole in them, and the holes of the two blocks must be aligned
- If no metallic blocks are detected after all 6 blocks are stacked, the robot must return to HOME position and message “No Metal”
- After two metallic blocks are stacked, the robot must immediately begin the “assembly” process
- “Assemble” the two metallic blocks by inserting an allen wrench into the aligned hole, with the L side up
- The allen wrench must fall through the hole to be picked up on the other side, with the L side on top
- The robot must pick up the bottom of the allen wrench, and then lift it with both metallic blocks on it
- The metallic blocks will not fall off the allen wrench, because the L side prevents them from falling.
- The robot must return to HOME position and message “Task Completed” after the robot assembles two metallic blocks successfully

CONTEST DESCRIPTION AND SCORING

The contest will consist of an online SkillsUSA (PDP) knowledge test, online written test covering knowledge of robotics concepts and practices, and practical hands- on activities that will measure the contestants’ skill in common robotics and automation tasks. The written test will contribute 10 percent to the total score and 87.5 percent will be divided among the various practical tasks as assigned by the technical committee. The SkillsUSA PDP test accounts for 2.5 percent, which is consistent with National SkillsUSA competition.

- Judges will supply a 4 mm allen wrench, metallic blocks, non-metallic blocks, LED, and inductive sensor
- Judges must be able to place the workpieces in order of depalletization at the beginning of the process
- Judges will test depalletizing using no metal blocks, all metal blocks, and mixed blocks
- The program should be less than 100 lines
- After completion, judges will “bug” the robot by changing one aspect of the programming
- Teams must then identify what has changed, correct the change, and then run the process again.

