2020 State Contest

MOBILE ROBOTICS

Description

Teams are given a task they are asked to solve using a mobile robotic system. Post-Secondary and Secondary Teams will **come prepared with a fully built robot capable of being reprogrammed** quickly to adapt to modifications of the game presented to the teams during Orientation.

Middle School Mobile Robotic Teams will bring their VEX IQ robots assembled and ready for competition. The contest will test the ability to document, construct, program and exhibit their solution to Mobile Robotics Technology, 2020

Teams will be given two interviews, the first for their overall design process, and the second for their programming solution to the problem.

Note: *Please check the SkillsUSA National website for updated contest information and the SkillsUSA National Technical Standards* http://updates.skillsusa.org

Eligibility

Open to a team of two active SkillsUSA members enrolled in a career and technical education engineering program or a program that integrates robotics, engineering or pre-engineering techniques as an integral component of the instructional program.

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)
- Black leather closed-toe dress shoes
- 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 800-401-1560 or 703-956-3723.

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

Clothing Classifications

Knowledge Performance

The contest will include the SkillsUSA Framework Essential Element Assessment. This will be given during Orientation.

Skill Performance

The contest will include activities that simulate situations encountered by robotic programmers and support professionals.

Contest Guidelines

1. Teams must be comprised of two members.
2. Teams are given a task that they will solve using a mobile robot.
3. Each team will have 10-minutes to present its engineering design process to the judges.
4. Each team will have 10-minutes to present its programming code to the judges.
5. Teams can only use an engineering notebook during the contest as a reference tool in the construction and programming of their robot
6. An engineering notebook is a tool for students to document their designs prior to the competition. It can include pictures, printed out sections of code, detailed assembly instructions, etc. All pages must be bound and numbered.
7. Each team will be given points for CAD drawings of their robot. These drawings should be included in the engineering notebook.
8. Robot(s) can only be constructed by the materials specified in the SkillsUSA Mobile Robotics Technology game manual. (see links below)
9. Teams will have six scored chances to solve the mobile robotic challenge, three chances for Programming Skills and three chances for Driving Skills. The highest score in each Skill will be recorded and submitted for judging.
10. Contestants are required to adhere to industry safety standards using the hardware and software provided.

11. All team members are responsible for double-checking each other's work and quality control.
12. All engineering notebooks and résumés must be turned in to the judges at Orientation. Notebooks will be returned no later than the start of the debriefing session
13. All team members and advisors are required to attend the debriefing session after the competition has concluded.

Equipment and Materials Supplied by contestants

1. Computer with programming software installed and licensed
2. Programming cable or other connection devices
3. Engineering notebook
4. All competitors must create a one-page résumé and submit a hard copy to the technical committee chair at orientation. Failure to do so will result in a 10-point penalty.
5. Post-Secondary and Secondary Teams: Fully built mobile robot as specified in the current SkillsUSA Mobile Robotics Technology game manual. The robot must be capable of being re-programmed and minor physical design modifications
6. Any non-powered hand tools necessary to modify their robot as needed.

Equipment and Materials Supplied by SkillsUSA California

1. Junior Mobile Robotics Teams will receive VEX IQ Robotic equipment for building their robot at NLSC. (PostSecondary and Secondary Teams must bring their own robots).

SkillsUSA National Links for Mobile Robotics Game Manual

Middle School
High School