TSA VEX Robotics Competition National Championship at the 2019 National TSA Conference

TSA VEX Robotics Competition (VRC) – Competition Guidelines

Overview

The VEX Robotics Competition (VRC) is the largest and fastest growing high school and middle school robotics program globally. Each year, an exciting engineering challenge is presented in the form of a game. TSA VEX teams - with guidance from their teachers and mentors - build innovative robots and may compete year-round in a variety of matches, including state competitions and the TSA VEX National Championship event held at the annual national TSA conference.

Challenge

Participants design and build a robot using the engineering design process that will best address the challenge of the designated VEX game design for the VRC. In the TSA VRC, teams compete in Robot Skills Challenges, showcasing programming and robot operation prowess, and compete head-to-head, (one robot versus one robot). There are no team alliances.

The robot should be structurally efficient, capable of scoring in both robot and programming modes of operation, and demonstrate real-time competition in head-to-head elimination tournament matches.

For the 2019 season, the VRC game is 'Turning Point.' Entries must be started and completed during the current school year.

Eligibility

A. All TSA VRC team members must be affiliated with the same TSA chapter for the current school year.

B. Teams must affiliate with TSA for the current school year.

C. Teams also must register as a VRC team, via robotevents.com, and be paid in full by March 1, 2019 to be eligible to participate in the 2019 TSA VEX National Championship. No exceptions will be granted.

D. Participants are limited to two (2) teams per chapter, with a minimum of two (2) and a maximum of six (6) participants per team. Both middle school and high school teams may compete in the VRC event; there is no separate VRC division for middle school teams.

Attire

Competition attire, as described in the national TSA dress code (www.tsaweb.org/Dress-Code), is required for the duration of the event. Teams will be subject to a 20-point deduction in their final Excellence Score for any dress code violation.

Procedure

A. TSA event registration: TSA state advisors approve and submit eligible VRC teams for the national TSA VEX Championship event, based on advancement guidelines. Additional teams may be waitlisted by TSA state advisors.

B. Check-in: Participants check in their robots at the time and place stated in the TSA conference program.

C. Inspection: Robots are inspected using official VRC inspection sheets. Students are present for the robot inspection. Robots must pass inspection in order to be eligible for competition. Repairs and adjustments may be made by students only, as required, in order for robots to pass inspection. Inspection must be completed within the designated timeframe and before a team competes in any component of the competition. Re-inspection of a robot may be ordered at any time throughout the competition by a referee to verify that a robot meets inspection requirements.

D. Robot Skills Challenge: Comprised of both Driver Skills and Programming Skills, this part of the competition determines the team rank for advancement to the Head-to-Head Tournament. Each team should complete at least one (1), but no more than three (3), of each type of skills challenge. The best Driver and Programming Skills scores will be combined into the team's Robot Skills score.

E. Head-to-Head Tournament: Teams will be ranked according to their Robot Skills score and assigned slots in the head-to head tournament, which is a single elimination tournament.

F. Excellence Award: Judges review the team's Robot Skills score and the score of the team's submitted Engineering Notebook to determine the best overall VEX Robotics team. Competition attire and team conduct throughout the event will be factors in the Excellence Award (see Regulation G).

Regulations

A. Only student team members may fill the roles of Driver and Coach during a TSA VEX competition; this includes Robot Skills matches and the final playoffs for VRC competitions.

B. Competition robots should reflect the work of the student team. While adults may assist students in urgent situations, only students may work on a robot or notebook.

C. Safety glasses are required during skills challenges and the Elimination Finals.

D. Engineering Notebooks are returned to VRC teams at the end of the competition.

E. The entry (the robot and notebook) must be the sole work of the members of a team. At TSA VRC events, students showcase their knowledge and skills in designing, building, repairing, and programming a robot, and in documenting their experience in their Engineering Notebook.

F. The Engineering Notebook is a requirement to be considered for the Excellence Award.

G. Referee rulings are final. Teams are responsible for confirming scored matches before a field is reset. Only team drivers may share their questions or concerns with a referee. Recordings on phones or other electronic devices will not be reviewed to challenge a score.

H. Students are expected to showcase good sportsmanship and conduct themselves in a respectful manner. Failure to do so may result in disqualification.

Evaluation

Driver Skills Challenge – This is a one-minute (60 seconds) challenge in which a team operates its robot in the competition field using driver skills and controller(s), with the opportunity to score as many points as possible unopposed by any other robot. Each team has up to three (3) attempts to achieve its highest score. The team's highest Driver Skills score is used in determining the team's Robot Skills ranking.

Programming Skills Challenge – This is a one-minute (60 seconds) challenge where a team operates its robot in autonomous mode on the competition field using programming skills, with the opportunity to score as many points as possible unopposed by any other robot. Each team has up to three (3) attempts to achieve its highest score. The team's highest Programming Skills score is used in determining the team's Robot Skills ranking.

Robot Skills Score – This score is a combination of a team's highest Driver Skills score and its highest Programming Skills score. It is used to rank teams for the Head-to-Head Tournament. The top three (3) Robot Skills scoring teams will be recognized.

Head-to-Head Tournament – Teams compete head-to-head, one (1) robot versus one (1) robot; there are no alliances. The elimination matches are single match format with the winner advancing to the next round. The top eight (8) teams will participate in the Elimination Finals to determine the winner.

Excellence Award – This award goes to the top three (3) robotics teams once all award criteria are evaluated. Team sportsmanship, attire, and conduct throughout the event are factors for this award.

Additional Information

To register a VRC Team, visit: www.robotevents.com.

To find out more about the VRC game, 'Turning Point,' visit: www.vexrobotics.com/vexedr/competition/vrc-current-game.