The 2026 Annual Engineering Robotics Competition

Competition Rules

Saturday, November 21, 2026 | 9 a.m. to 3 p.m.

Note: Two Things have been updated (and they are highlighted in orange on page 4, 6, 7, and 10)

Gear up for an exciting competition where your team's SumoBot will battle it out in an epic arena!

This year's challenge is very similar to last year's. For easier reference, all new changes and additions will be highlighted in yellow.

In this competition, each team will design an autonomous SumoBot with one mission: to outlast and eliminate the competition in intense head-to-head matches. Eight SumoBots will enter the ring simultaneously. The challenge? Be the last robot standing as the arena shrinks around you!

Every team should bring a trifold poster on the day of the event. Your poster should showcase your robot's design and highlight your team's soft skills, giving a behind-the-scenes look at your journey to becoming champions (More details in the Poster Rubric). This year, at least one team member must be at the table when the judges visit and be ready to answer any questions they may have.

Are you ready to dominate the arena and claim victory?

Let the battles begin! 🚀🏆

Tournament Structure

The tournament will be conducted as follows:

Preliminary Rounds

- ➔ Each team will compete in an “N” number of matches (N is determined on the day of the competition as the detailed schedule is released), against 7 other teams.
- ➔ The scores of this round will be calculated based on the SUM of Point Score for all “N” Matches.

Playoffs Rounds

- ➔ The top sixteen scoring teams from the preliminary rounds advance to the playoffs.
- ➔ Qualifying Teams will be seeded into two batches.
- ➔ The teams of each batch will compete against each other.
- ➔ The top eight scoring team from this will move on to the Quarter-finals.

Quarter-Finals

- ➔ In this round, 8 teams will be competing against each other.
- ➔ The top 4 scoring teams will move on to the Semi-finals.

Semi-Finals

- ➔ The arena will be bisected using white tape 4” wide (see image below).
- ➔ In this round, 4 teams will be competing against each other.
- ➔ The top 2 scoring teams will move on to the Finals.

Finals

- ➔ The arena will be further bisected using white tape 4” wide (see image below).
- ➔ In this round, 2 teams will be competing against each other. The team with the highest score wins the competition.

A visual description of the tournament structure (following the preliminary rounds) is depicted in Figure 1.

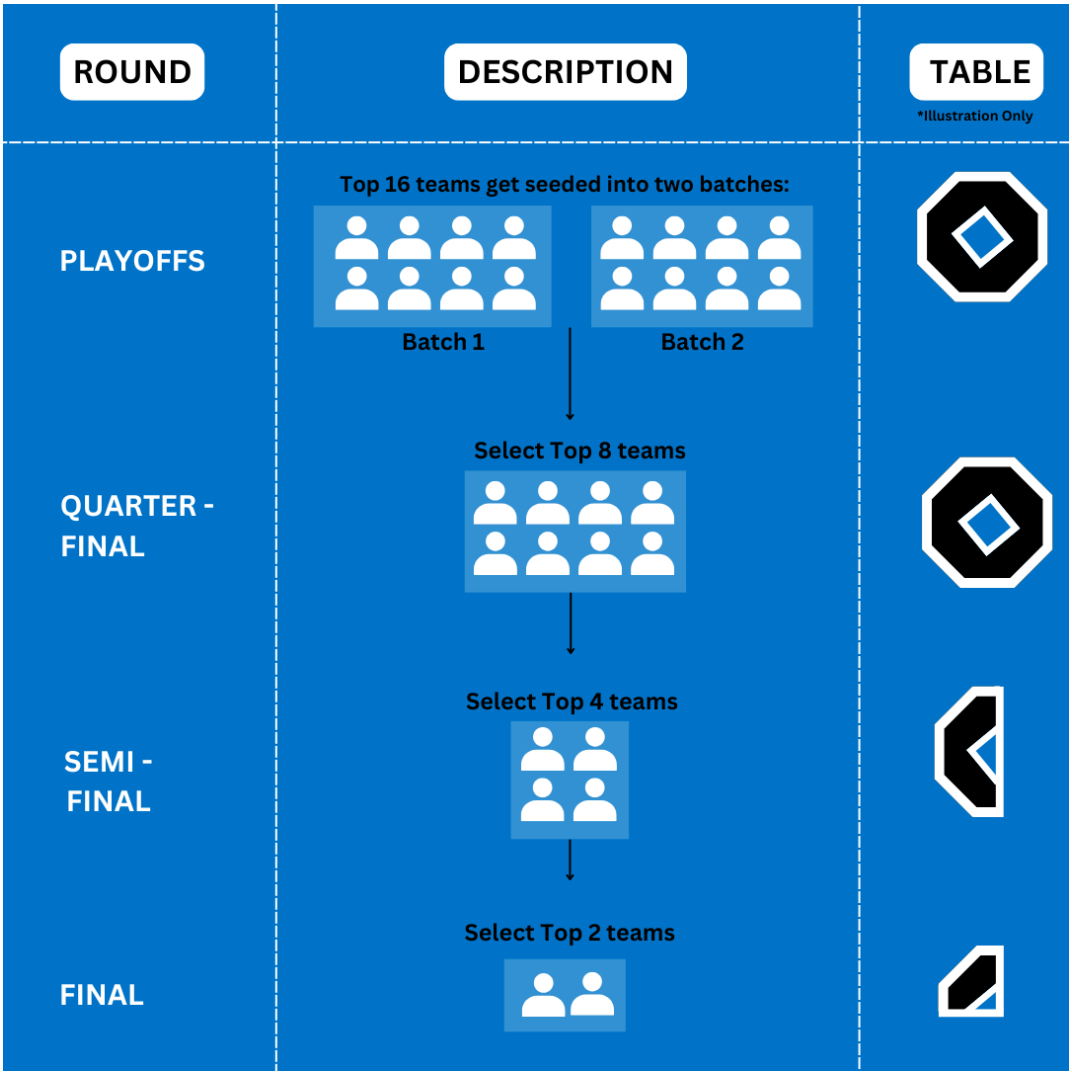


Figure 1: Tournament Structure

Tournament Score

This year, and based on your feedback from last year, we will not be carrying the score from preliminary rounds into Playoffs. The team score is calculated based on the following formula:

Preliminary Team Score = SUM of the team's preliminary match scores - **Team lowest match score**

Total Team Score (for qualifying teams only)= SUM of the team's match scores in each of the Playoffs and final rounds. The preliminary score will NOT be added to the team's final score.

During the matches, judges will be floating around to check and grade the teams for their Poster design (Poster Rubric attached below). These posters will be displayed at each team's table, and at least one team member has to be present at the table to answer any questions from the judges. Judges will move between observing the arena matches and reviewing team posters. A schedule with designated times for judge visits to each table will be shared prior to the competition. The Poster design Rubric is attached below.

Note: In the event of a tie in the preliminary and playoffs matches, the advantage will be given based on the higher score from the most recent match both SumoBots participated in. In the event of a tie in the final rounds, a re-match will occur and the average score of the tied teams will be considered as the tie-breaking score.

Tournament Rules

1. **The referee's word is final** on all competition matters including but not limited to the rules and the results of matches.

2. SumoBots are to act autonomously, i.e., with no human control or interference during a match.

3. At the start of a match, each SumoBot must fit into a 20 cm x 20 cm square, **with NO height limitation. There's no limit on height.** You can measure your robot in any position or orientation you like, but it must start the match in that exact same position. **For example:** If you flip your robot upside down to fit within the square during inspection, it must also start the match upside down, and the robot should have a **5-second motionless delay after you press start.**

4. SumoBots will be measured before the tournament to ensure they comply with this rule. The referee has the discretion to re-measure a SumoBot before any match. Parts of the SumoBots may extend outside this area after a match has started, **however they must start in the configuration that they were measured i**n. Failure to meet the criteria will result in either a penalty or disqualification at the referee's discretion.

5. Matches start on the command of the referee and last a maximum of 2 minutes.

6. Each SumoBot must have a 5 second delay after the operator pushes start before their SumoBot starts to move.

7. The SumoBots will be placed in the eight corners of the octagon competition area with their front ends facing towards the center of the table.

8. A SumoBot is eliminated if:
    a. It falls off the table
    b. It is immobilized for more than 5 seconds , e.g., flipped over, flipped onto its side, caught on an edge of the table and cannot move, etc.

    Note: If the SumoBot is eliminated, they would get the score of the position they are in (for example if there were 7 robots on the table they will get the score of the 7th pace). Also they will keep the score of eliminating others before they were eliminated.

9. Points for each match are awarded as follows:
    - 1st Place: 12 points
    - 2nd Place: 9 points
    - 3rd Place: 6 points
    - 4th Place: 5 points
    - 5th Place: 4 points
    - 6th Place: 3 points
    - 7th Place: 2 points
    - 8th Place: 1 point

    Note: the N in the Nth Place denotes the order in which your robot is ranked relative to the match. For example, if you're in the 8th place, this means that your robot was the first to be knocked out, and hence got only 1 point.

10. If a SumoBot is unable to start a match for any reason it will receive zero points for that match.

11. In the event that there is more than one SumoBot surviving at the end of a match, each team will receive points for the place corresponding to the number of tied teams. For example, if there are two SumoBots remaining at the end of the match, then they will both be awarded 2nd

place and 9 points each. In a 3-way tie, the three teams will be awarded 3rd place and 6 points each, and so on.

12. Teams will be awarded 3 points for each SumoBot they eliminate during a match. The awarding of these points is at the discretion of the referee. The purpose of these bonus points is to encourage teams to actively seek-out and engage other SumoBots.

13. This year, the arena will feature different single coloured tapes randomly scattered throughout the arena. Teams can earn points by correctly identifying each colour and executing its dedicated action. Per successful colour recognition the team will be awarded 3 points. The robot must correctly identify the colour before executing its dedicated action to gain the points.
    - Green: The robot must travel at 100% speed for 1 second, then return to its base speed.
    - Red: The robot must stop for 2 seconds, then return to its base speed.
    - Yellow: The robot must reduce its speed to 25% for 1.5 seconds, then return to its base speed.
    - Blue: The robot must stop, turn right, wait 0.5 seconds, then turn left.

    Another addition to the arena is the **Color Sequence Challenge.** By completing the sequence challenge successfully teams will be awarded 6 points. The sequence points can be scored a maximum of once per match.

    - Green to Red: When the robot identifies Green followed by Red, it should execute a continuous ~360° in-place spin to successfully complete the sequence.

    Coloured Tape Specifications: All coloured tape used in the arena will have a defined thickness of 3 cm and length of 12 cm.

14. All robots must have a max speed of **80%** unless executing one of the actions featured above or if it recognizes another robot and executes its attack code.

Arena

Figure 2 shows an eight-sided Sumo ring. The Sumo ring is an octagon that is approximately 96” from edge-to-edge, with each edge 40-41” in length. The table is painted black with a 1 ½ - 2” white stripes denoting the edge of the table. In the middle of the competition area is a square hole that is 18” from edge-to-edge. The border of the hole is marked by a 4” white stripe.

New: In the arena, there will be different coloured tapes. A single tape used in the arena will have a defined thickness of 3 cm and length of 12 cm. Teams would score extra points for each proper detection of colored tapes.

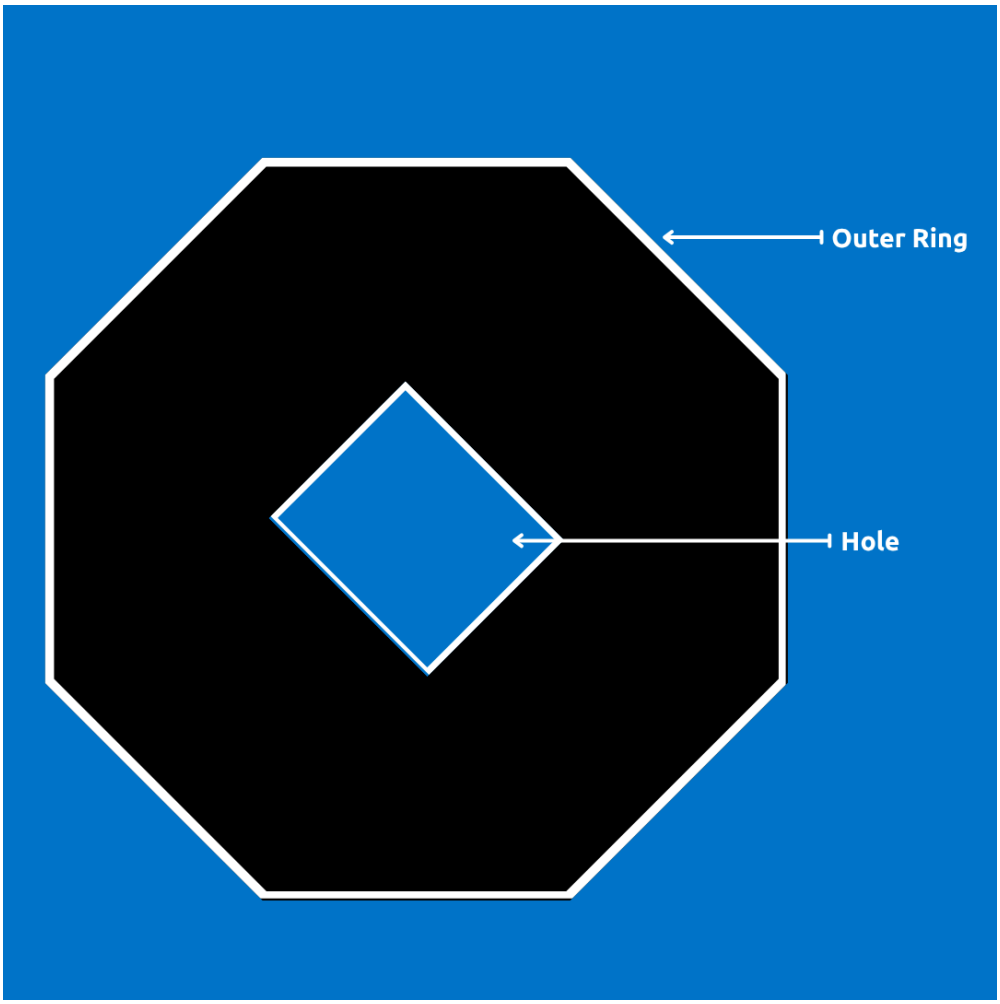


Figure 2: Competition Table

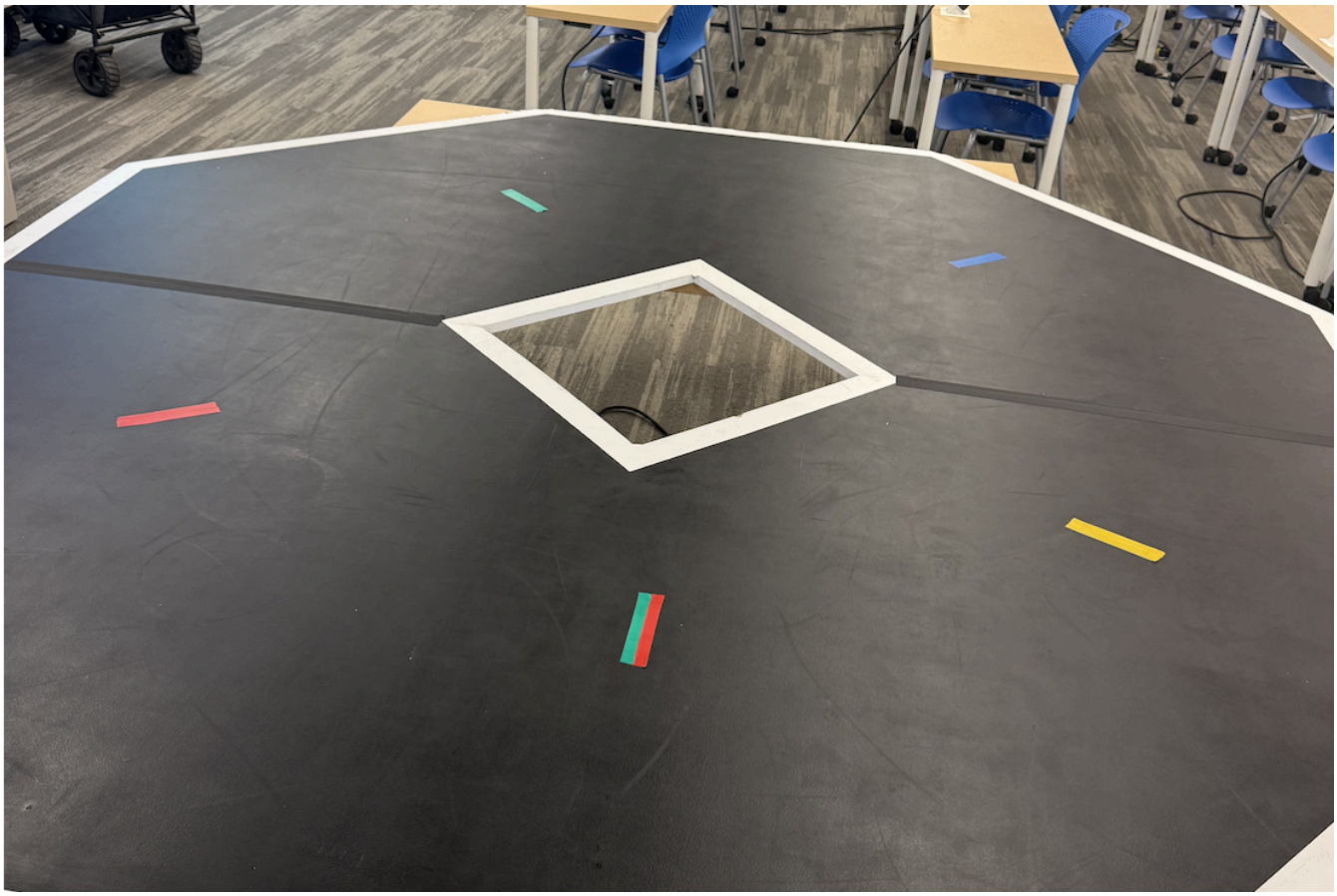


Figure 3: An example of the Competition Table with color tapes. The green to red sequence will be put side by side and not end to end.

Engineering Design Rules

The following rules govern the design, build, and coding of the SumoBot. Any infractions will result in point deductions, match disqualification, or competition disqualification at the discretion of the referees or tournament committee.

1. Teachers are NOT allowed to build, program, or in any other way do work on the SumoBot. Teachers are there to be a guide to the students of the team.

2. SumoBots are to act autonomously, i.e., with no human control or interference during a match. Neither the Bluetooth nor the WIFI functionality of the brick may be used.
3. To clarify this rule more, You can use ANY programming software or language. The SumoBots can be programmed using any languages or IDEs other than the Mindstorms NXT, EV3, or SPIKE software.
4. The number of sensors is limited to four, the number of motors is limited to three, and tracks (e.g. instead of wheels) are not permitted. The number of bricks/brains are limited to ONE. If you use the built-in gyro sensor in the SPIKE Prime Hub, you must count it as one of the four allowed sensors.
5. SumoBots may use various forms of detection to locate the opponents' SumoBots. They may also incorporate stealth technology to avoid detection by the opponents' SumoBots. Signals may be used to try to confuse the opponents' detectors.
6. Only Lego materials are allowed in the design of the robot.
7. The rubric of the poster can be found below.

Poster Rubric

The Rubric for the poster can be found here:
Poster Guidelines and Rubric | Robotics Competition | F2025
Please note that bringing in a poster on the day of the competition is mandatory in order to participate in the competition.

Awards

We'll be presenting all awards during the final ceremony, and we kindly ask that teams stay until the end to celebrate together and receive any awards. If a winning team isn't present, the award will be passed on to the runner-up. Please note that this year, we won't be mailing awards to schools — so be sure to stick around and take yours home!

1st, 2nd, 3rd:

Three awards are given based on the overall score calculated.

Arena Survivor Award*

Awarded to the team whose robot remains in the arena after successfully outlasting their opponent.

*This award is only given if the opposing robot is fully knocked out of the arena.

Best Poster Design Award:
Recognizes two teams that create the most effective and visually engaging posters to showcase their robot's design, features, and development process. This award celebrates a poster that clearly communicates the team's journey, including the challenges they faced, the solutions they implemented, and the lessons learned. The winning poster should be well-organized, with distinct sections for team introduction, hardware and software design, and achievements, all presented in a cohesive and visually appealing manner. The poster should be informative yet concise, with visuals that enhance the understanding of the robot's unique aspects. This award is determined by judges.

Best Engineering Design Award

Recognizes two teams that demonstrate exceptional engineering principles through a robot that is not only mechanically robust and reliable but also

efficient in its design and performance. The winning design will showcase creative problem-solving, effective use of materials, and advanced programming, all contributing to a robot that stands out in its ability to tackle competition challenges. This award is determined by judges.

Best Novel Design Award
Given to two teams that demonstrate exceptional engineering skills and creativity in designing and building their robot. This award recognizes teams that have gone above and beyond in developing a robot that is not only effective in completing missions but also exhibits innovative and thoughtful design elements. This award is determined by judges.

Referee's award for Sportsmanship
Given to two teams that embody the true spirit of fair play and respect throughout the event. This award is given to the team that consistently demonstrates positive behavior, whether in victory or defeat, and shows genuine support for other teams. The recipients of this award are those who maintain a cooperative and gracious attitude, helping others, following the rules, and setting a positive example for everyone involved in the competition. This award is determined by referees.

Women in Engineering Award
This award is given to two teams that exemplify the promotion of diversity and inclusion in engineering, with women playing key roles in the design, development, and presentation of their robot. The award highlights the importance of empowering women in STEM fields and acknowledges the positive impact they have on their team's success and on the broader engineering community. This award is determined by the referees and judges.

Best Coach/Mentor Award

This award recognizes two individuals who have gone above and beyond in guiding, inspiring, and supporting their team, fostering a learning environment where students can thrive both technically and personally. The winning coach or mentor demonstrates exceptional dedication, patience, and encouragement, helping their team overcome challenges and achieve their goals. The organizing committee will decide on this award.