

ROBOTICS STATE TOURNAMENT

Sponsored by FIRST and Presenting Partner-MSHSL

Season Begins:

The season shall correspond with all dates and guidelines outlined by the FIRST Robotics Competition.

Contest:

All MN FIRST robotics team are eligible to participate in the 36-team MSHSL/FIRST State Championship held on May 18th, 2019, at Williams Arena on the U of MN Twin Cities campus. Teams will qualify for the event based on their performance at their initial FIRST Regional competition regardless of the location. Teams are not charged a registration fee but are responsible for their own food, transportation, and housing expenses. Load-in, pit setup, robot inspection, and field radio connection will be Friday evening on May 17th.

Robot Requirements:

Teams will follow all the rules and guidelines of the FIRST Robotics Competition. Each robot must pass inspection to be allowed into the competition. The State Championship is a bag and tag event. Teams may unlock their robot for a total of six (6) hours between the team's last competition and the MSHSL/FIRST Championship event. The six hours may be broken up in any way the team wishes with the exception that no single access period may be shorter than two (2) hours. This is patterned after the District event guidelines (specifically R19, R20, and R21 in Section 10 Robot Rules, <https://www.firstinspires.org/resource-library/frc/competition-manual-qa-system>). Teams will document their work time as per FIRST rules for bag and tag events. Teams arriving without proper documentation on the Robot Lock-up Form or an unbagged robot can be disqualified at the discretion of the Lead Robot Inspector.

Team Membership:

All students eligible for membership on a FIRST Robotics team will be eligible for the State Championship. Students must be in Good Standing as defined by MSHSL rules to participate. Exception: No students in grade 6 or under will be eligible.

MSHSL Eligibility Information Brochure:

Prior to participation in the state co-sponsored event, the student and one parent or guardian must sign and return one copy of the 2019 Robotics Eligibility Form to the student's school or the lead team mentor. The student and parent or guardian signature will certify they have read, understand, and agree to abide by the information provided. The form may be found at this web page: (<http://www.mshsl.org/mshsl/robotics.asp>)

State Competition Qualification:

Teams qualify based on their performance point total at their initial FIRST Regional competition. Qualifying points are based on the District Model except points are applied from only one regional event (12.8.1 in Section 12 Tournaments, <https://www.firstinspires.org/resource-library/frc/competition-manual-qa-system>). A team winning a Chairman's Award at any Regional competition automatically goes to the State Championship. A total of 36 teams will qualify for the tournament. Given that teams play at many different events on different weeks, invitation to the State Champion will be after the FIRST Regional events have concluded. Many of the point entries are manual operations and, consequently, errors may occur in point totals.

Every effort will be made to correct any unintended errors. Teams must accept their invitation to the State Championship within one week of final notification.

Qualifying Entry:

Questions should be sent to StateRankings@mnfirst.org.

POINT CATEGORY	POINTS
Qualification Round Performance	
$QualificationPoints(R, N, \alpha) = \left[InvERF\left(\frac{N - 2R + 2}{\alpha N}\right) \left(\frac{10}{InvERF\left(\frac{1}{\alpha}\right)}\right) + 12 \right]$ <p>(For typically-sized district events, this will result in a minimum of 4 points being awarded for qualification round performance. For events of all sizes, a maximum of 22 points will be awarded)</p> <p>See examples below for application of this formula.</p>	
Final Alliance Captains After Picking	Equal to 17 minus the ALLIANCE CAPTAIN number (e.g. 14 points for ALLIANCE #3 Captain)
Draft Order by Acceptance	Equal to 17 minus the Draft Order Acceptance Number (e.g. 12 points for the Team that is 5th to accept an invitation)
Playoff Advancement	
Quarter finals, for alliances that advance	5 points for each match played in and won
Semifinals, for alliances that advance	5 points for each match played in and won
Finals, for the winning alliance	5 points for each match played in and won
Awards	
Engineering Inspiration	8
Rookie All-Star	8
All other judged team awards	5
Team Age	
Rookie Teams	10
2 nd year Team	5

* Rookie teams are not eligible for Chairman's Award points.

Qualification Round Performance examples for 60 and 63 team events. Note that many events may not be this large and the qualification points will be reduced proportionally per the equation:

63 team events:

Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Points	22	22	21	20	20	19	19	18	18	18	17	17	17	17	16	16	16	16	15	15	15	15	14	14
Rank	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Points	14	14	14	13	13	13	13	13	12	12	12	12	12	11	11	11	11	11	10	10	10	10	9	9
Rank	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63									
Points	9	9	8	8	8	8	7	7	7	6	6	5	5	4	3									

60 team events:

Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Points	22	22	21	20	20	19	19	18	18	18	17	17	17	16	16	16	16	15	15	15	15	14	14	14
Rank	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Points	14	14	13	13	13	13	12	12	12	12	12	11	11	11	11	11	10	10	10	10	9	9	9	9
Rank	49	50	51	52	53	54	55	56	57	58	59	60												
Points	8	8	8	7	7	7	6	6	5	5	4	3												

Tiebreaker

If any teams have the same number of points, the following hierarchy of tiebreakers will be used to break the tie:

- 1st Order Sort: Total Playoff Round Performance Points
- 2nd Order Sort: Playoff Round Finish
- 3rd Order Sort: Alliance Selection Results Points
- 4th Order Sort: Qualification Round Performance Points
- 5th Order Sort: Highest Individual Match Score
- 6th Order Sort: Second Highest Individual Match Score
- 7th Order Sort: Third Highest Individual Match Score
- 8th Order Sort: Random Selection

Alternate Teams:

If, prior to the competition, any team is unable to participate, an alternate will replace that team. Teams must accept their invitation to the MSHSL Championship event within one week of final notification. If a qualifying team declines an invitation, the next highest qualifying team will be selected from the list of eligible teams. Alternate teams will have 48 hours to respond to an invitation.

Event Time Schedule:

Friday Night

Load-in, pit set-up, registration, robot inspection, and robot-field radio connection
5:00pm – 9:00pm

Saturday

Pits open - 7:30am

Opening Ceremonies - 8:15am

Qualification Rounds: 8:30am-12:30pm

A random draw will determine alliance team composition for qualification rounds. The number of qualification matches for a 36-team field will be based on approximately 6 hours of play.

Lunch Break: 12:30pm – 1:30pm

Qualification Rounds: 1:30pm -3:30pm

Alliance Selection: 3:30pm-3:45pm

The top four teams will be selected based on Qualification Ranking and sort order during the qualification rounds (10.4.3 in Section 10 Tournaments,

<https://www.firstinspires.org/resource-library/frc/competition-manual-qa-system>). The top four (4) teams will select alliance partners for the finals.

Playoff round: 4:00pm until completion with awards following immediately (approximately 5:15pm)

Playoff rounds will consist of semi-finals and finals. Play will be 2 out of 3 with a minimum of 5 minutes between rounds. The top (first) team listed in the bracket will be the red alliance.

Semi-Finals: 4:00pm

1st round - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

2nd round - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

3rd round (if necessary) - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

Third Place: one match

Bottom two alliances from Semi-Finals

Finals: 2 out of 3 matches

Top two alliances from Semi-Finals

General Conduct:

Competing teams will exhibit the qualities of Gracious Professionalism and compete in the spirit of “Coopertition”.

Disputes:

Any disputes arising during the competition shall be reported to the Head Referee and Tournament Director for resolution.

Awards:

Trophies: Awarded to the three teams in the first, second, and third place alliances.

Medals: Awarded to the members of the three teams in the championship, first, second, and third place alliances. (25 medals per team). Additional medals can be purchased after the event.

Certificate of Participation: Given to each team qualifying for the state tournament (25 per team). Additional certificates can be purchased after the event.