

## **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 30-team MSHSL/FIRST State Championship held on May 21<sup>st</sup>, 2016, 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. Load-in and competition preparation for the event will be on Friday, May 20<sup>th</sup>.

### **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 (Admin Manual Section 5). 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 2016 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 (see section 7.4 of the Admin Manual). The exception to these point valuations is for a Chairman's Award submission. By submitting and presenting at any Regional competition, the team will be awarded 10 points. If a team presents for Chairman's at multiple events, they will only receive 10 points once. A team winning a Chairman's Award at any Regional competition automatically goes to the State Championship. A total of 30 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](mailto:StateRankings@mnfirst.org).

POINT CATEGORY	POINTS
<b>Qualification Round Performance</b>	
<p><i>QualificationPoints</i> (<math>R, N, \alpha</math>)</p> $= \left\lceil \text{InvERF} \left( \frac{N - 2R + 2}{\alpha N} \right) \left( \frac{10}{\text{InvERF} \left( \frac{1}{\alpha} \right)} \right) + 12 \right\rceil$ <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>	
<b>Final Alliance Captains After Picking</b>	
#1 Alliance Captain	16
#2 Alliance Captain	15
#3 down to #8 Alliance Captain	14 down to 9
<b>Draft Order by Acceptance</b>	
#1 Draft Pick (Accepted)	16
#2 Draft Pick (Accepted)	15
#3 down to #16 Draft Pick	14 down to 1
<b>Playoff Round Performance</b>	
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
<b>Awards</b>	
Chairman's Award Submission (any regional event)	10 (awarded only once) *
Engineering Inspiration	8
Rookie All-Star	8
All other judged awards	5
<b>Team Age</b>	
Rookie Teams	10
2 <sup>nd</sup> year Team	5

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

## Qualification Round Performance examples:

### Lake Superior/10,000 Lakes:

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	12	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									

### Northern Lights/North Star:

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:

1<sup>st</sup> Order Sort: Total Playoff Round Performance Points

2<sup>nd</sup> Order Sort: Best Playoff Round Finish

3<sup>rd</sup> Order Sort: Total Alliance Selection Results Points

4<sup>th</sup> Order Sort: Highest Qualification Round Performance Points

5<sup>th</sup> Order Sort: Highest Individual Match Score

6<sup>th</sup> Order Sort: Second Highest Individual Match Score

7<sup>th</sup> Order Sort: Third Highest Individual Match Score

8<sup>th</sup> 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 - 8:30am

Qualification Rounds: 8:45am-12:30pm

A random draw will determine alliance team composition for qualification rounds. The number of qualification matches for a 30-team field will be based on approximately 5 hours of play.

Lunch Break: 12:30pm – 1:30pm

Qualification Rounds: 1:30pm -2:45pm

Alliance Selection: 2:45pm-3:00pm

The top four teams will be selected based on Qualification Score and sort order during the qualification rounds (FRC Game Manual Section 5.3.4). The top four (4) teams will select alliance partners for the finals.

Playoff round: 3:15pm until completion with awards following immediately (approximately 4:30pm)

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. Defenses will be chosen by the audience before the Semi-Finals and before the Finals.

Semi-Finals: 3:15pm

1<sup>st</sup> round - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

2<sup>nd</sup> round - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

3<sup>rd</sup> round (if necessary) - Alliance #1 vs Alliance #4, Alliance #2 vs Alliance #3

Third Place: one match

Bottom two teams from Semi-Finals

Finals: 2 out of 3 matches

Top two teams 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.