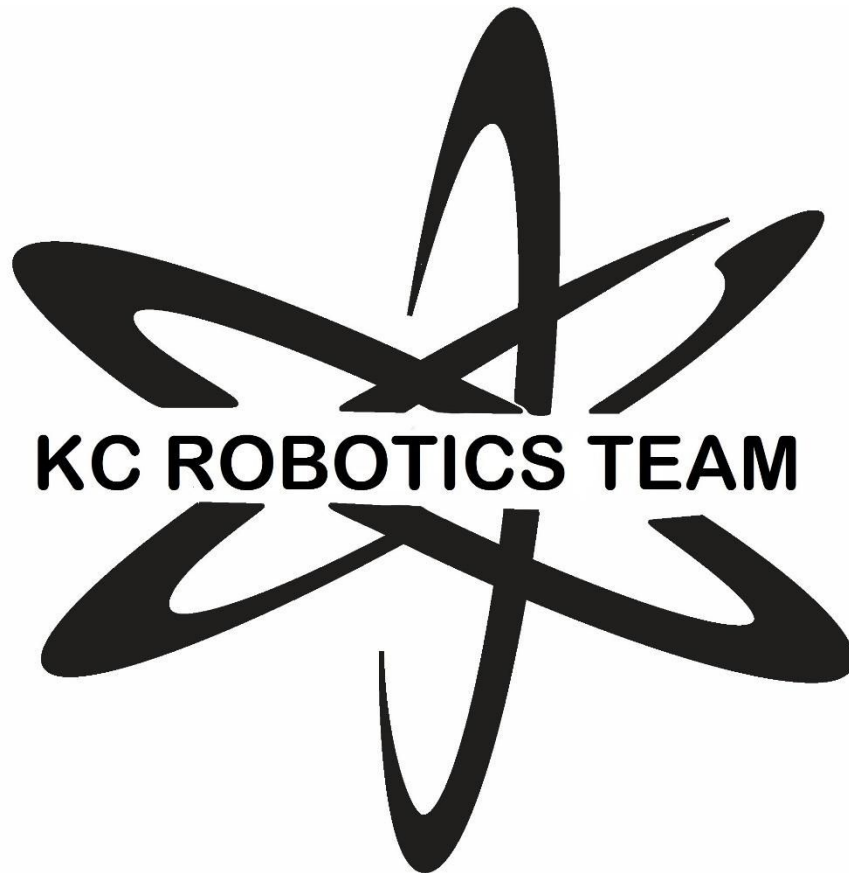


KC Robotics Team Handbook



**FTC Team 208/FRC Team 1553
2018-2019 Season**

www.kcroboticsteam.org

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1. Introduction

This handbook is an information source and communication tool for the participants in the KC Robotics Team (Team) and their parents/guardians. This handbook is current as the date in the footer of this document. Team related information may change throughout the year. The Team website (www.kcroboticsteam.org) will have the latest Team information.

2. Mission

The mission of the KC Robotics Team is to inspire Kershaw County South Carolina students in 7th through 12th grades to become leaders through participation in mentor based FIRST® robotics programs that build science, technology, engineering, and mathematics (STEM) skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, and communication and leadership abilities.

Although winning awards and competitions is fun and important, those accomplishments are not specific goals of the Team's mission.

3. Programs

The KC Robotics Team works to fulfill its mission through participation in two FIRST¹ robotics programs – FIRST Tech Challenge® (FTC®) and FIRST Robotics Competition® (FRC®). Below is how FIRST describes these programs.²

- FTC is designed for students in grades 7-12 to compete head to head, using a sports model. Teams are responsible for designing, building, and programming their robots to compete in an alliance format against other teams. The robot kit is reusable from year-to-year and is programmed using a variety of languages. Teams, including coaches, mentors and volunteers, are required to develop strategy and build robots based on sound engineering principles. Awards are given for the competition as well as for community outreach, design, and other real-world accomplishments. A maximum of 15 students are allowed on this team.
- The varsity Sport for the Mind™, FRC combines the excitement of sport with the rigors of science and technology. Under strict rules, limited resources, and time limits, teams of 25 students or more are challenged to raise funds, design a Team "brand," hone teamwork skills, and build and program robots to perform prescribed tasks against a field of competitors. It's as close to "real-world engineering" as a student can get. Volunteer professional mentors lend their time and talents to guide each team.

FTC is for students in the 7th to 12th grades. FRC is for students in the 9th to 12th grade. Our Team has one FTC team. Our FTC team number is 208. Our Team has one FRC team. Our FRC team

¹ FIRST stands for "For Inspiration and Recognition of Science and Technology". Learn more at www.firstinspires.org.

² FTC description is from the FIRST FTC website – www.firstinspires.org/robotics/ftc. FRC description is from the FIRST FRC website – www.firstinspires.org/robotics/frc.

number is 1553.

FIRST was founded in 1989 by Dean Kamen. Their mission is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

FIRST has over 200 scholarship providers for college students with over \$80 million available in scholarships. You can learn more at www.firstinspires.org/scholarships.

4. KCSD Support

The Team partners with the Kershaw County School District (KCSD) to provide this opportunity to Kershaw County children. The Team is provided financial support, facilities support, and staff support to make this program available. The Team is grateful for KCSDs support.

5. Eligibility

Student members of the Team can be any student, living or going to school in Kershaw County, who is in the 7th to 12th grade. It does not matter if the student attends a public school, private school, or is home schooled. Students who are active members of the Team and who maintain passing grades in all classes can maintain their eligibility on the Team. A student can lose the eligibility to be a Team member for:

- Having a failing grade at the end of a current school grading period.
- Breaking a KCSD, FIRST, or Team rule or policy.
- Not an active participant in Team activities

Loss of eligibility will be handled on a case by case basis.

The entire Team is currently limited to 30 student members. This is to help keep a proper student/mentor balance during our Team activities. If the number of interested students exceed the number of students the Team can accept, the Team mentors will use a balanced selection process will be used to choose the students who will be on the Team.

Our overall team is divided into two subteams. Those are the FTC robot team and the FRC robot team. Middle school students can participate on our FTC robot team. High school students can participate on our FTC and FRC robot team. The FTC robot team is limited to 15 students per FIRST rules. At this time there is no limit to the number of student members on our FRC robot team.

6. Grades

It is critical that students understand that school work is a priority before robot Team activities. Students must ensure they maintain good grades to help ensure their future success. Students are welcome to complete homework during a Team meeting if the student needs that time to complete an assignment.

The grades of student Team members will be periodically checked to ensure the students are maintain adequate grades for continued Team participation. A Team mentor who is a KCSD employee will be the one performing these checks.

7. Involvement

Students can be involved in the Team in many ways. Below is a partial listing of different Team activities and brief description of each activity.

- Activities – Planning Team events and activities.
- Awards – Review FIRST program awards that we are eligible for and create our entries for those awards.
- Build – Design and construct robots.
- Drive Team - Be a member of a robot drive team.
- Marketing – Develop Team materials to market the Team throughout the community.
- Media – Take pictures and videos of the Team to document Team activities and to use in social media.
- Programming – Assist with the development of the programming of the robot computers.
- Safety – Develop a Team safety manual and train Team members on safe operation of equipment.
- Scouting – Develop and implement scouting program for robot competitions.
- Social Media – Update the Team’s social media outlets to keep Team members and the community informed of Team activities.

8. Communication

The primary method for Team communications is through Team emails sent by our Team Communicator. It is important that each student have at least one parent/guardian who receives Team related emails in addition to the student. Be sure to provide an email address that will be checked regularly. Emails will be sent blind copy so email addresses stay protected.

The Team email address is kroboticsteam@gmail.com. This email goes to our Team Communicator.

The Team is using Remind (www.remind.com) to send text messages to Team members. This is a great tool for quick communications to the Team and reminder of upcoming events. You can download the Remind app to your mobile device, create an account, and then sign up for notifications from @kcrob (@kcrob is our our group name).

The Team calendar is available on our website (www.kroboticsteam.org/calendar). This calendar is a public calendar in Google. You can add the Team calendar to your personal Google calendar so all entries are immediately available. In Google Calendar, “KC Robotics Team”. All Team calendar entries start with “Robot” so it will be easy to determine which entries are related to our Team.

Other Team information is provided on our other social media platforms.

- Website – www.kcroboticsteam.org
- Facebook – KC Robotics Team
- Instagram – kcroboticsteam
- Twitter – @KCRoboticsTeam

Connect with us on these platforms to see Team related photos and other bits of information about our Team.

The Team mailing address is PO Box 421, Lugoff, SC 29078. The team mailbox is checked approximately every three weeks. Do not send information to this address and expect a prompt response.

9. Meeting Days/Times/Locations

For the first part of the school year, Team meetings are usually held on Tuesdays from 4pm to 6pm. The Team meetings typically start a few weeks after school starts. All meetings days and times will be posted on the Team website (www.kcroboticsteam.org/calendar). Check the Calendar page of our website for updated meeting information

Starting in January, the Team usually meets three days per week. This is due to the construction period of the FRC robot and completion of FTC activities. Usually the Team meetings are on Tuesdays and Thursdays from 4pm to 6pm and on Saturdays from 8am to noon.

It is understood that not every student can attend every meeting. It is important that students attend as much as possible to stay an active member of the Team. Students who are not active members will not be eligible for Team trips, such as to robot competitions.

Occasionally a scheduled meeting will need to be cancelled due to inclement weather or some other issue. The Team Communicator will send an email as soon it is known that we need to cancel a scheduled meeting.

The Team holds meetings in various rooms in the Lugoff-Elgin High School Annex building. Primarily the students meet in the robotics room in that facility. Students will also have activities in the rooms previously used as the cafeteria and the media center in that facility. Except for bathroom facilities, students have no reason to be any other portions of that facility unless the Team has special activities planned (such as a yard sale) that uses other portions of the facility.

Some Team activities will be held outside the Lugoff-Elgin High School Annex. These include events such as robot competitions and robot demonstrations. Those activities will be publicized in advance.

Students are required to sign in/out when they participate in Team meeting. Students shall sign in very soon after coming to the Team meeting and sign out when leaving the Team meeting. A sign in/out book will be near the entrance to the Team room.

10. Financial

Students have a Team fee they must pay. Team fees are \$100 for middle school students and \$150 for high school students. Team fees are due no later than November 1 of the program year. Not paying Team fees by that date can lead to removal from Team membership. Team fees include Team shirt costs. Middle school students will get one Team shirt. High school students will get two Team shirts. If the Team fee is burdensome for a student, please contact one of the team mentors to discuss the issue and see what arrangements can be made.

Students are expected to participate in all Team fundraising activities. The Team typically has the following types of fundraisers.

- Spaghetti Diner and Silent Auction
- Marble Slab Coupon Sales
- Yard Sale/Craft Fair (one in Fall and one in Spring)
- Midlands Gives (early May)

Details about each fundraiser will be shared once they are known. For fundraisers where we sell specific items, students will be expected sell enough items to raise a minimum amount of money. Students can opt out of participating in the selling of items if they pay the expected fundraising amount for that activity. For example, if we expect each student to raise \$50 through Marble Slab coupon sales, students could directly pay \$50 and not participate in the selling of Marble Slab coupons.

Students will have some competition travel related expenses for which they are responsible. We have several events we will travel to. These can be one day events or multi-day events. Each person participating on the trip (students, mentors, parents) is required to pay for their own travel expenses including items such as food, lodging, fuel, and incidental expenses. For overnight trips, the Team will make hotel reservations at one facility. To help minimize costs, students will share rooms together (typically two students per room with two beds in the room). It is expected that all Team members stay at the Team hotel unless specific needs warrant different plans. To allow for as much planning as possible, all expected costs for an event will be shared long before the event.

11. Registration

Each student and mentor will be required to complete a Team Member Information Sheet. This document will be used to provide Team mentors important information about each Team member. Members who do not have a completed Team Member Information Sheet cannot participate on the Team.

Each student and mentor will have to register with FIRST to participate in the robot competitions. Instructions on how to register will be sent to all Team members. Parents/guardians of each student will have to register first then register their child. Students and mentors who do not complete the FIRST registration process are not eligible to participate in FIRST sponsored events as Team members. They can attend the events but would only be

allowed to be a spectator.

12. Photos/Videos

The Team follows the KCSD permission requirements concerning photos and videos. Parents/Guardians of students will be given three options concerning their child and Team related photos and videos.

- Use a photo or video of a student on the Team's website, social media, or news articles as long as the student's name is not included.
- Use a photo or video of a student on the Team's website or social media, and news articles, along with the name of the student.³
- Not use a photo or video of a student in any Team information.

13. Competitions

The Team competes in several competitions.

FTC Competitions

The South Carolina FIRST FTC competition program changed to a league program starting with the 2018-2019 season. The league system has the following basic components. More details are provided in Appendix 1.

- Four leagues were established for South Carolina. Our team is part of the Capital Area League.
- There will be three "meets" within each league. Scoring will be kept and used for ranking in the league.
- There will be a League Championship between two leagues.
- The top 12 teams from each League Championship will advance to the South Carolina State Championship.

Because of the change to a league format, the South Carolina FTC events no longer allow teams from other states.

Two teams from the South Carolina State Championship will advance to the FTC World Championship in Houston TX.

The league meets will not require overnight stays for our team. The South Carolina FTC League Championship may require an overnight stay depending on where that competition will be held.

The South Carolina FIRST FTC State Championship will require an overnight stay as that event is held in Gaffney SC. This will be an overnight trip with the Team departing after school on a Friday and competes and returns home on Saturday.

If the team advances to the World Championship in Houston TX, that would be approximately a

³ Requires parent/guardian permission per KCSD policies.

week long trip.

The FTC Team may have the opportunity to participate in scrimmage matches with the robot they will construct during the program year. We will attempt to compete in these events, even if a robot is not completely functional. These scrimmages usually take place on a Saturday.

FRC Competitions

The South Carolina FIRST FRC competition is usually held the beginning of March in the Convention Center in Myrtle Beach. This is a multi-day trip. The Team will depart on Wednesday after school and return home on Saturday evening.

At the South Carolina FIRST FRC competition, the team may be able to advance to the FRC World Competition held in Houston TX. That trip would be approximately a week long trip.

The FRC Team typically competes in two off-season events each Fall using the robot built during the previous school year. These off-season competitions will be one day events. One event the Team usually participates in is the South Carolina Robotics Invitational and Workshops (SCRIW) event held in Dreher High School. The other event the Team usually participates in is held in Reidsville NC. The Team will travel to that event on a Friday after school and participate in the competition on Saturday. These events are typically held in October or November.

The Team calendar has the specific dates for each of these events.

14. Policies

The Team partners with the Kershaw County School District (KCSO) to provide this robotics program. Therefore the Team follows KCSO policies for all of its activities.

FIRST has a FIRST Youth Protection Program. This program has the following purpose.⁴

The purpose of the FIRST Youth Protection Program (FIRST YPP) is to provide Coaches, Mentors, Volunteers, employees, others working in FIRST programs, team members, parents, and guardians of team members with information, guidelines, and procedures to create safe environments for everyone participating in FIRST programs.

The fundamental aspects of the FIRST Youth Protection Program are the same as the KCSO policies. Our Lead Mentor and Alternate Lead Mentor are required to complete FIRST Youth Protection Program training. All Team members are to have a basic understanding of the program and its requirements. You can learn more about the FIRST Youth Protection Program at this website - <http://www.usfirst.org/aboutus/youth-protection-program>. Team members will be provided training on the FIRST Youth Protection Program.

The adult Team mentors who are not KCSO employees and that work with the students are required to annually complete the KCSO Volunteer Application (<http://www.kcsoschools.net/volunteer>) and the required background check. The Team will reimburse the mentor of any required background check fee if the mentor requests

⁴ From the FIRST Youth Protection Program booklet.

reimbursement.

15. Rules

The Team has a set of rules to govern the general activities and the safety of Team members. Team activities include working in congested areas with potentially dangerous equipment. That equipment includes tools and robots. To help keep general order of the Team and to avoid injuries during Team activities, each Team member will be expected to follow the robot Team rules. Each student will be provided a copy of the rules. The rules will be posted in the robotics room and on the Team website. The rules will be reviewed with the Team members. If the student understands and agrees to follow the Team rules, the student will be required to sign a document indicating that understanding and willingness to follow the rule. Breaking robot Team rules or not agreeing to follow the Team rules can result in loss of Team eligibility.

16. Disciplinary Action

If a Team member breaks a Team policy, KCSO policy, Team rule, or FIRST rule, will face disciplinary actions. The basic disciplinary steps that will be followed are listed below.

Step 1 – Team member advised by mentor as to the unacceptable actions and asked to make appropriate behavioral changes.

Step 2 – Team member parents/guardians contacted and a meeting scheduled with the student, parents/guardians, and appropriate Team mentors to discuss the situation. The student may not participate in Team activities until after the meeting and if a successful solution was implemented.

Step 3 – Team member will be suspended from the Team for the next two Team activities or the next two weeks, whichever is longer. Team member parents/guardians contacted and a meeting scheduled with the student, parents/guardians, and appropriate Team mentors to discuss the situation. The student may not participate in Team activities until after the meeting and if a successful solution was implemented.

Step 4 – Student removed from the Team. Team member parents/guardians contacted and a meeting scheduled with the student, parents/guardians, and appropriate Team mentors to discuss the situation.

The actual disciplinary action that will be taken will be based on the violation that occurs. For example, a student could immediately be removed from the Team if the initial violation is serious enough.

17. Classwork/Assignments

Some Team activities may require students to miss portions or all of some school days. Missed school days for robot Team activities will be pre-approved as excused absences. However, students are responsible for any and all work they may miss on those days. When possible,

students should complete any assignments before the Team's activities.

18. Drive Teams

Both the FTC and FRC programs require a "drive team".

Typically the FTC drive team will consist of three members: two students that do the robot driving and one coach. Students are required to do the robot driving. A mentor can be the coach but we prefer a student performs that role.

Typically the FRC drive team will consist of four members: two students that do the robot driving, one student human player, and one coach. Students are required to do the robot driver and be the human player. A mentor can be the coach but we prefer a student performs that role.

Students will be able to express interest in being a drive team member. Students interested in being a drive team member will participate in drive team tryouts. The tryouts will consist of different tests such as the ability to operate the robot and knowledge of robot competition rules. Drive team selection criteria will be developed once the specific game is announced for that program. The drive team will be chosen each new game.

Off-season events provide an opportunity for multiple students to get an idea of what it is like to be part of the drive team. For those events, multiple sets of students may be selected to be part of a drive team.

19. Safety Captain

The FRC program requires a student to be a Safety Captain. Students can express an interest in being the Team's Safety Captain. The Safety Captain will be required to help develop and improve the Team's safety program, to help perform training to Team members on how to use tools and other safety related topics, perform the role of Safety Captain during FIRST FRC competitions, and be familiar with the FIRST FRC Safety Manual.

Interviews will be conducted of those interested in being Safety Captain. The Team mentors will choose the Team's Safety Captain. This position will be selected each school year.

20. Attire

Team members are expected to follow KCSD dress code policies while at all Team activities.

Team members are expected to wear Team shirts during certain Team activities. These include activities such as participating in robot competitions or doing fundraisers. Team members are expected to not alter their Team shirt. (Wearing buttons is not considered altering a Team shirt.) The care and cleaning of a Team member's shirt is that team member's responsibility. Students will be informed in advance if a Team shirt is to be worn to an activity.

21. Refreshments

Students are always hungry when they come to the robotics room after school. Parents/guardians are invited to provide snacks and drinks to share with the Team.

Snacks should be individually wrapped packages so they can be stored properly between meetings. Items like homemade snacks (such as brownies and cookies) are excluded from this requirement as there are never any leftover items to store.

Drinks should be in individual serving size containers such as cans or bottles. Bulk drinks (such as 2 liter bottles) may also be provided.

Students can also bring their own personal snacks that they do not need to share with others.

Students are expected to eat snacks and drinks in reasonable quantities so there can be items to share with everyone.

22. Parent/Guardian Responsibilities

Parents and guardians are an integral part of our Team and are very important to our continued success. Parents and guardians are also key factors in motivation and dedication of their Team member. Supporting their Team member in all aspects of their Team involvement is key to them getting the most of the program. Parents and guardians are encouraged to participate in Team activities whenever possible.

Parents and guardians have several responsibilities. These include (but are not limited to):

- Support their student's interest in the FIRST programs.
- Participate as mentors when possible, offering their guidance and expertise on various topics.
- Assist their student in all fundraising activities.
- Attend and parent/guardian mandatory meetings.
- Read and respond (as needed) to any Team related emails.

23. Supporters

The Team could not be possible without the Team supporters. Many of the supporters have provided financial or material contributions to the Team for many years.

The Supporters page (www.kcroboticsteam.org/supporters) on the Team website has a list of current supporters.

Financial donations to the Team can be provided by providing a check (preferred) or cash to one of the Team mentors or by mailing it to the Team (PO Box 421, Lugoff SC 29078). A receipt will be provided.

Other donations such as services, material, and food/drinks are also welcome. A receipt can be provided for these items.

24. Non-Profit Organization

The Team is a registered non-profit, 501(c)(3) organization and is registered as a public charity in South Carolina. All donations to the Team are tax deductible.

25. Forms

The Team has several forms to help it accomplish its mission. Those forms are separate from this handbook but are still critical to the success of the Team. Those forms are available on the Team website.

26. History

The Team was started in the 2004-2005 school year. The Team has undergone name changes, meeting location changes, and added participation in the FTC program after starting with the FRC program.

The About page (www.kcroboticsteam.org/about) on the Team website provided more details about the Team history.

27. Awards/Accomplishments

The Team has won numerous awards and has achieved several accomplishments. The Awards page (www.kcroboticsteam.org/awards) on the Team website provided more details about the Team awards and accomplishments.

28. Revisions

Significant revisions to this document will be show in red font. The list below provides a brief summary of the revision, when was made, and who made it. At least one year's worth of revisions will be shown.

Revision Description	Revision Made By	Date
Initial document.	Paul Sullivan	9/10/2015
Added information about FTC and FRC team sizes. Added information about the Remind app.	Paul Sullivan	10/29/2016
Many minor editorial) revisions to the document. Added FIRST scholarship information. Added Team calendar access information.	Paul Sullivan	4/3/2017
Minor document edits. Add meeting sign in/out requirement.	Paul Sullivan	5/19/2017
Minor document edits for 2017-2018.	Paul Sullivan	9/3/2017
Minor document edits for 2018-2019. Added Appendix 1.	Paul Sullivan	9/16/2018

29. Appendix 1 - FTC Competition Information



New for 2018-2019: FTC League Play

Program Overview

For the 2018-2019 season, South Carolina FIRST Tech Challenge teams will participate in League Play. This offers many positives for our teams:

- Increased number of matches played (minimum of 20)
- More opportunity to make design and strategy changes during the season
- More opportunities for family, friends, teachers, and sponsors to view competitions
- Better chances to develop relationships with local FTC teams

This is an exciting development for South Carolina FTC teams. But there are significant differences from the program that has been offered in the past.

Details

Each South Carolina FTC team will be assigned to a League of teams from the same region of the state, with the goal of having 8-12 teams per League.

1. Upstate
2. Capital Area
3. Pee Dee
4. Low Country

Each League will schedule a series of “meets” (it is planned that there be three meets but we are considering a fourth which will not be scored early in the season so everyone can get used to the program) to provide an opportunity for each team to play five matches at each meet. A meet involves only inspection and field competition without Elimination Rounds nor Judging. This will require about three hours to complete and may be scheduled for after-school or a weekend. There will be at least two weeks between each meet to provide ample time to further develop or improve robot capabilities. Match results for each team will be kept for all matches, but the top ten scores will be used for seeding in the League Championships.

After the completion of the meets, a League Championship will be held for all teams in two Leagues. The League Championship Tournament will follow the normal format with Judging and Elimination Rounds. The top twelve teams from the Championship will qualify to advance to the South Carolina State Championship using the criteria established by FIRST for qualification tournaments as detailed in Game Manual Part 1.

This will provide each team a chance to play a minimum of twenty matches during the season. This is 300% more match time than you have had in the past in South Carolina and for those advancing to the State Championship it will be 400% more match time than in the past.

South Carolina



ROVER
RUCKUS



New for 2018-2019: FTC League Play

Changes for Individual Teams

To accommodate these features, individual teams will see some other changes.

Fees

A new fee will be added to cover the cost of League operations.

FIRST Tech Challenge Registration	Mandatory	\$275
South Carolina FTC League	Mandatory	\$275
South Carolina FTC Championship	Optional	\$350
FIRST World Championships	Optional	\$2,000

Season Schedule

Teams have had a LOT of time to meet the game challenge in the past, from September until February. With League play starting as early as mid-October, teams will have to stay on task in order to have a competitive robot ready in time. However, the bonus will be that teams have four events to get it right, with time between each event for design and software iterations.

Registration

Teams are required to be registered to participate in ANY FIRST sponsored event, with the exception of Kickoff Events. So teams need to register early.

Hosting / Volunteers

Each League will have to provide sites, volunteers, and equipment as needed to conduct League meets. Teams will be asked to either host an event or provide volunteers. We hope to also tap into some FLL and FRC teams to provide experienced FIRST volunteers.

Closed Borders

South Carolina will be a Closed Border Championship this year. This is partly because the League structure does not allow teams to join late. And also due to the limited number of advancement slots we have to the Houston World Championship Event – Two. The Lottery for World Championships does still exist and is a good mechanism to get to Houston if your team has many years of participation but has not advanced to Worlds or since your team advanced. In 2016/2017 season we had two teams get to Houston with the Lottery and all three of our teams were ranked in the upper 50% of teams!