

2019-2020

**South River High
School Robotics**



Rambotics

[TEAM 4573 HANDBOOK]

Publication – October 23, 2019

Table of Contents

1	TEAM OVERVIEW	3
1.1	Mission Statement	3
1.2	Team History	3
2	TEAM MEMBERSHIP	4
2.1	Team Member Expectations	4
2.2	Code of Conduct	4
2.3	Parent/Guardian Responsibilities	5
3	TEAM ORGANIZATION	6
3.1	Organization Sub-Teams	6
3.2	Specialized Roles for Competition / Game Day	7
4	OTHER INFORMATION	7
4.1	FIRST Youth Protection Policy (YPP) and Program	7
4.2	Fundraising	8
4.3	South River High School Workspace Considerations	8
4.4	Safety and Health Considerations	8
4.5	Competition and Event Dress Code	9
4.6	Scholarship Eligibility	9
4.7	Lettering	9
4.8	Acceptable Technology Usage Policy	10
4.9	Student and Parent/Guardian Consent	10



South River High School Robotics Team Handbook

1 Team Overview

South River High School Robotics participates in FIRST Robotics. FIRST is "For Inspiration and Recognition of Science and Technology," a program founded by inventor Mr. Dean Kamen. We are both an academic and community based team composed of high school team members within the borough of South River, NJ.

FIRST Robotics Competition (FRC) teams compete head to head, using a traditional 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 a strategy and build robots based on sound engineering principles, mathematics, physics, and use current technology and computer science practice. Team members also use a variety of non-technical skill sets including budgeting, strategic management planning, marketing and sales, cost accounting, purchasing, art design, public relations, media, and leadership to help promote and sponsor the team initiatives.

Dubbed a "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 constraints; teams are challenged to raise funds, design a team "brand," hone teamwork skills, and build and program a robot to perform prescribed tasks against a field of competitors. It's as close to "real world" engineering that a team member can get to business operation and management. Volunteer professional mentors lend their time and talents to guide each team in both technical and non-technical area of interest.

FRC challenges teams of high school age team members and their mentors to solve a common problem in a six-week time frame using a standard "kit of parts" and a common set of rules. (The kit of parts represents only about 20% of the final robot. The rest is "invented by the team.") Teams build robots from the parts and compete in games designed by FRC.

Team members learn skills such as computer-aided design and machining, electrical and mechanical engineering, computer programming, web design, animation, marketing, problem solving, time management, organization, cooperation, consensus building and communication. Since all these skills take time to learn, one can literally spend 4 years on the team doing different aspects of the team duties.

FIRST redefines winning by rewarding teams for excellence in design, demonstrated team spirit, gracious professionalism and maturity, and the ability to overcome obstacles. Scoring the most points is a secondary goal. Winning means building partnerships that last. Our program is driven by the generous support of adult volunteer mentors. Mentors are skilled machinists, engineers, educators, and professionals employed at local area businesses.

1.1 Mission Statement

Our mission is simple. It is our goal as team 4573 SRHS Rambotics, to make a comfortable environment that will inspire students to grow, prosper, and stay hungry to learn more. We can achieve our goals by having hands on experience with Science, Technology, Engineering, Arts, and Mathematics (STEAM) and the help of our mentors who have real life experience in the STEAM fields.

1.2 Team History

The SRHS Robotics Team was founded in 2012 by a group of interested students and their parents along with their South River High School physics teacher. The original team consisted of nearly a dozen team members and three technical mentors, and they entered their first regional competition with the robot in 2013. Since then the SRHS Robotics Team has continued to grow and the team is becoming more recognizable throughout the high school and community as they participate in outreach events.

2 Team Membership

All South River High School students are eligible to become members of the Robotics team. SRNJ Rambotics is about more than building the robot for six weeks out of the year: it's about taking part in all of the activities that help to make the team successful. Accordingly, the expectation is that team members will attend scheduled meetings, participate in fundraisers and outreach events. While academic and family obligations come first, meeting obligations to the team may mean re-arranging personal schedules to be able to participate in community service, training, mentoring, outreach, and other activities. To get the most out of what FIRST Robotics has to offer, and to be a team member that others can count on to contribute to the team's success, every team member needs to commit to making full participation in team activities a priority.

Mentors, parents, teachers, and alumni of SRHS Robotics Team 4573 are encouraged to be **actively involved** with the team. Everyone is invited to participate in team events, meetings, and work sessions. This is a great opportunity for all to have a good time, share knowledge, learn about technical and non-technical things, and enjoy a wonderful experience.

Our team's main communication method is through our team email. We will use this system to keep members informed of up-coming scheduled activities/events, changes in meeting times due to weather, and completion of required tasks. Team members (and parents) can join the South River High School Robotics Team group email by sending an email to John Curran (Advisor) at jcurran@srivernj.org. Our team also communicates via Facebook (<https://www.facebook.com/SouthRiverRoboticsTeam>). Regular email newsletters will be sent to our team members, parents, sponsors, and interested community members.

2.1 Team Member Expectations

1. Every student will have to **maintain eligibility** through school rules. Please see the South River High School (SRHS) Student Handbook for more information on eligibility requirements.
2. Students are expected to make a significant time commitment to the team, actively participating in meetings, workshops, and events. Commitment to the team increases substantially during the months of January – May.
 - a. During the six weeks of build season, (early January through mid-February) the team meets up to five nights each week and Saturdays. Evening meetings are 6:00 pm – 9:00 pm. Saturday meetings are 10:00 am – 2:00 pm. After shipping the robot, members will continue to meet at a reduced schedule depending on the needs of the team.
 - b. To be considered an active team member, at LEAST 50% attendance is required at meetings and events.
3. Students are expected to be reliable (on-time, prepared to work, clean up, positive attitude, assist newer members, responsive to mentors and other adult volunteers) and assist with team administrative tasks.
4. Students should show initiative and be responsible for whatever tasks he or she has agreed to complete.
5. Students and parents must complete all required and necessary registrations with Team, FIRST, and South River High School.

2.2 Code of Conduct

"Gracious professionalism," one of the founding precepts of FIRST, is essential to team participation. "It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community" (www.usfirst.org). The following Code of Conduct describes standards of behavior applicable to ALL team members (Students, Mentors, and Advisors) and is intended to create an environment that encourages gracious professionalism. Violations of the Code of Conduct are subject to disciplinary action, to be determined by the team's lead mentors and SRHS Administration, which may include suspension from team activities, ineligibility to travel with the team, or removal from the team.

1. Team members will display "Gracious Professionalism" at all times and promote the ideals of FIRST.
2. Team members will sign an agreement and follow the same rules as dictated by South River High School in accordance with the South River High School Student/Parent Handbook.
<https://hs.srivenj.org/ourpages/auto/2018/9/14/44038727/2018-2019%20Student%20Handbook.pdf>
3. Team members will behave in a courteous and cooperative manner, especially when in public, visiting corporate offices, presenting to sponsors, and during outreach events and activities.
4. Team members will be respectful of others and behave in a way that does not endanger the health and safety of themselves or others.
5. Team members will be respectful of the facilities, tools, equipment and all things being used by the team.
6. Team members shall not use profane, obscene or vulgar language in written, gestured, or verbal form. SRNJ Rambotics abides by South River Public School's Acceptable Use Policy for all communications, including all social media and Internet usage.
7. Team members will keep current with team activities and requirements by checking the website and their email frequently.

2.3 Parent/Guardian Responsibilities

Parents/guardians are an integral part of our team and important to our success. The robotics team becomes a family throughout the year because the members spend a lot of time together. The students learn about hard work, perseverance, commitment, patience, joy, defeat, computer skills, respect, engineering, writing, interviewing, business skills, money management, marketing, production, publishing, kindness, time management, and most importantly, gracious professionalism. Having the involvement of their parents will only enhance this experience for them. Requirements for parents/guardians include:

- (1) Providing timely transportation for their student to/from team events (this may include carpooling)
- (2) Assisting and supporting students in fundraising, robot demos, and community service activities
- (3) Providing accurate medical information for their student, and keeping the Team Advisor informed of any changes
- (4) Participating in any team activities – it really helps to have parents present at these events! Parents are frequently needed to transport the robot(s) and students to and from robot demos, to provide adult supervision at car wash fundraisers, etc.
- (5) Chaperoning team trips
- (6) Helping your student organize an event or activity
- (7) Mentoring
- (8) Administrative duties (fund drives, awards submissions, marketing, and public relations)

Transportation to and from meetings is the responsibility of the parent or legal guardian for each individual team member. Team members must ensure their parents or legal guardian picks them up on-time when meetings end and at the conclusion of travel from competitions. Because team members are from all over

our community carpooling is encouraged. (Please be mindful of the fact that our mentors are volunteers who are sharing their time with team members.) Parental consent must be provided for each SRHS Robotics Team member who wishes to attend a team competition or other scheduled event away from South River High School.

Because no adult mentor may ever be alone with one single team member, it may be necessary on some occasions for a parent who is picking up the second to last team member to remain on the school grounds until the last team member's parent(s) or legal guardian has arrived. Any changes to meeting times or dates will be made prior to the scheduled meeting and communicated through the team email. All team members are required to complete a permission slip to acknowledge their parent's acceptance for the team member to attend the competition and possible carpool with other parents.

3 Team Organization

The Team as a whole consists of both students and adults (Mentors, Advisors, Volunteers, etc.). Students elect a Student President who is responsible for coordinating all student activities. Students also elect team captains for the various Executive Board and technical / non-technical sub teams as described below. Adult volunteers serve as mentors for each of the technical and non-technical sub-teams. Executive Board and Team Captain elections are typically held at the conclusion of each academic year.

A lead mentor is chosen to oversee all aspects of the team's operation. This individual works closely with the other mentors, students, The South River High School Principal, and the adult/Faculty Student Advisor(s), as applicable.

3.1 Organization Sub-Teams

The team is composed of an Executive Board, and technical and non-technical sub-teams with areas of responsibility as described below. Each sub-team is led by a student captain and has one or more adult mentors and may consist of other adult volunteers/mentors and students.

Executive Board:

- President** – This individual has overarching responsibility for managing the team and its activities. The President is liaison between Mentors and students and establishes boundaries. He / She is also responsible for sending emails via the official Rambotics account.
- Vice President** – This student is responsible for assisting the President as needed
- Secretary** – This person is responsible for taking notes during team meetings and maintaining accurate attendance/participation records at all meetings and events.

Technical sub-teams:

- Electrical** – Power, wiring, and circuitry
- Mechanical** – Design and construction of the robot's drive train and other required mechanical systems (arms, turret, lift system, etc.); as well as construction of a practice field.
- Programming** – Develops and updates the robot's operating program (Java)

Non-technical sub-teams:

- Sponsorship** – Seeks corporate sponsorship/donations and creates programs to raise awareness of the team mission and help collect funds
- Outreach** – Coordinates activities related to the betterment of the community and to help promote the awareness of the team within the surrounding area
- Event Coordinator** – Coordinates fundraising and social outreach events within the community
- Hype** – Design and purchase team promotional materials for game day as well as responsible for generating crowd excitement during the competition
- Safety** – Responsible for everyone understanding hazards during build season and at competition
- Strategy and scouting** – Pays close attention to other teams' capabilities to facilitate alliance selections
- Web Design** – Social media (e.g., Facebook, twitter) management and website content; Point of contact for news and announcements, photos, etc. Maintains the team's website; promotes team through participation in various community activities and presentations. Note: ALL content must be pre-screened by an adult mentor who is approved by the SRHS Principal, prior to posting
- Pit** – Responsible for the maintaining the pit and training the pit crew for competition

Note: Travel and Finance activities are handled by the Faculty Advisor(s).

3.2 Specialized Roles for Competition / Game Day

Besides the opportunities to design and build the robot or promote the South River High School Robotics Team, there are specialized roles that are filled at the team competition. These selected roles can be filled by team members in good academic standing and recommendation of the Team Advisor.

- Pit Captain** – This selected individual is the person who is in-charge of the pit. He/she will delegate assignments work to be performed in the pits.
- Safety Captain** – This selected person is responsible for safety performance and maintaining a clean area while in the pit. The Safety Captain must remain in the pit unless relieved from duty by an alternate to take his/her place in the pit. This individual will be responsible to log all materials, tools, and equipment that are loaned out/borrowed from other teams during the competition.
- Pit Crew** – These individuals come from the various sub-teams to help in the pits to continually maintain and repair the robot as needed and maintain a required and active presence in the pit throughout the competition day.
- Drive Team** – The team consists of at least two robot drivers, the human player, and the coach. Members of the technical and non-technical are eligible to try out for various positions based on their qualifications and capabilities. The selection for the driver and human player will vary depending on the strategy of the competition. Driver selection may be based on the outcome of written tests and performance around an obstacle course. Professional mentors will assist the strategy team in selecting a robot with a drive train that resembles the current robot to ensure validity of the test results. Data obtained from these tests will be used in the final selection of drivers and their alternates.
- Coach** – The drive team is responsible for selecting their Coach. Traditionally the selected Coach is a professional mentor with much familiarity with the robot design capability, and operation.
- Hype Team** – This team is responsible for generating crowd excitement for the team during the competition, especially when the Rambotics team is competing.
- Scout Team** – This team involves careful observation of other team's strategies, capabilities, and performance in order to help assist our competition strategy and performance as well as to aid in possible alliance team selection.

All team members planning on attending the team competition are expected to actively participate in one or more of the above teams/roles throughout the day. The type, number, and duration of shifts required will depend upon the number of team members planning on attending the competition. No team members will be permitted to attend the competition as part of the team without participating in one or more shifts. Team members who fail to cooperate / participate may be subject to removal from the team.

4 Other Information

4.1 FIRST Youth Protection Policy (YPP) and Program

SRHS Rambotics Team 4573 is committed to adhering to the guidance and instruction provided by FIRST with regard to youth protection. 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.

<http://www.firstinspires.org/sites/default/files/uploads/about/FIRST-YPP-ProgramGuide.pdf>

4.2 Fundraising

Fundraising is an important part of the team's budget. In order to afford various competitions and purchase other tools, machinery, and equipment or offset supply costs, the South River High School Robotics Team must raise funds to supplement corporate sponsorships, gifts, and investor donations. Fundraising activities may include selling T-shirts, water bottles, or lanyards with the SRHS Robotics Team logo or selling food products like popcorn, baked goods, or candy. All fundraising endeavors will be considered based on funding and return on investment strategy. Every student is expected to participate in the team's fundraising efforts. Fundraiser requests must be approved by the SRHS Robotics Team leadership and SRHS administration before occurring.

4.3 South River High School Workspace Considerations

Our team is fortunate that South River High School provides the Technology Room on the first floor as a build site after school hours. In order to be good stewards, we require that team members:

- Do not wander the hallways or other classrooms (only exceptions are shared public spaces such as the lunchroom and restrooms.)
- Be mindful and respectful of other team members and their workspaces.
- Keep build site neat.
- Put away tools at the end of each work session.
- Use garbage cans and empty them when full.
- Recycle plastic and glass containers and paper.
- Clean up food wrappers and drink bottles each day.
- Only use power tools under the direct supervision of an adult mentor.
- Make effective use of their time building or collaborating on team business.
- Wear appropriate safety glasses and protective equipment.
- Follow safety rules with respect to operating and using power equipment.
- Maintain a noise level and conversation that does not disrupt others.

Team members must be supervised by an adult mentor to be in our team's workspace. Because of the long hours during build season, some reasonable food and drink consumption is allowed. Clean-up is the responsibility of each team member. Food and drinks should not be consumed near machinery, computers, robots or electronics.

4.4 Safety and Health Considerations

The responsibility for safety lies with each and every SRHS Robotics team member. Mentors shall view the team member team members as young adults, acting much like the employees of an organization. As such, they are expected to demonstrate safe and professional behavior while at the build site, when participating in competitions and in any place or situation where they represent the South River High School team.

The Safety Captain will be responsible to help keep everyone safe by making fliers, pamphlets, and DVD's about proper safety procedures. Safety and workshop orientation training is offered at the beginning of the season. Every student should attend this training. The Safety Captain will be responsible for making sure that **EVERYONE** follows proper safety procedures. However, **everyone** should be aware of the safety rules and make sure everyone is acting safely. Important safety rules include, but are not limited to:

- Team members are expected to wear safety glasses at work sites and in the pit area at competitions. Prescription glasses are not considered safety glasses.
- Wear gloves, dust masks, and hearing protection during certain work tasks.
- No open toe shoes, "crocs," etc. Shoes provide protection in case of dropped materials.
- No loose-fitting clothing or long hair. It can that present an entanglement hazard.
- No "horseplay." Working with tools and machines does not mix foolish behavior.
- No personal electronics with earphones. You need to hear warnings and instructions.
- Power tools and equipment may only be used under the supervision of an adult mentor.
- Housekeeping is important. Team members are expected to clean up work areas every day. This includes putting away tools and materials, removing trash, and cleaning work surfaces.
- For personal safety, team members will not give out personal information about themselves or others when using communication tools such as emails, text messages, or social websites.
- Team members will be respectful of the Safety Captain(s) and adhere to their requests.

The Team Advisor, mentors, captains will discuss safety issues with team members as necessary. Safety is that important to us! Any team member not following our team safety guidelines will face consequences. Disciplinary actions will be determined by a mentor committee that may result in a verbal warning, suspension from team meetings/activities, replacement or removal from the team.

4.5 Competition and Event Dress Code

South River High School (SRHS) has a dress code policy for team members. The established SRHS dress code policy shall be in-force for all outside activities, events, and competitions. On travel days and during competition, SRHS Robotics Team members shall wear their T-shirts unless otherwise notified by mentors or the Team Advisor. SRHS Robotics Team shall provide each team member with a T-shirt at no charge upon joining the group. Additional T-shirts can be purchased at a nominal price.

4.6 Scholarship Eligibility

FIRST actively promotes monetary scholarships from major universities. In the last few years, over \$15 million in annual scholarships have been available for FIRST robotics team participants for team members majoring in engineering, computer science, mathematics, and technology. Team members may also receive other scholarships in business, accounting and finance, public relations, media design, and other related majors.

4.7 Lettering

Student members of South River High School Robotics Team 4573 may be eligible for a varsity letter. To earn a letter, a member must be on the team for at least one whole season (starting in Sept. and ending the 1st week of June). A season consists of 10 months of weekly meetings, mandatory training, outreach programs and fundraising. The following criteria must be met to letter:

- Attend 65% of all hours during the season
 - Absences will be excused when provided with valid reasoning prior to the event or meeting
- Attending at least one competition and fulfilling all responsibilities in the pit and in scouting
- Attend all mandatory meetings/trainings
 - Scouting
 - Safety
 - Programming/Electrical/Mechanical
 - Judges Questions
- Must get recommendation from committee captain
- Attending the meeting and passing the robot test post build season and prior to competitions
- Attend half of all fundraising/outreach and community events that are provided throughout the season

4.8 Acceptable Technology Usage Policy

The use of software and technology related to the South River High School Robotics Team 4573 is a privilege, not a right. This privilege can be taken away just as it was given. Users of any computers and software must abide by the rules to reduce risk, limit liability, and avoid sabotage. Team members may not transmit, process, store, or view anything that violates state or federal laws or anything prohibited by any mentor, expressly or otherwise. Anyone vandalizing the equipment, including introducing viruses, attempting to circumvent any system security or acting in a way that can be interpreted as having this intention shall lose his/her computer privileges and may be subject to removal from the team. This includes installing software without authorization, attempting to harm or destroy South River High School Robotics team equipment or materials or the data of any other user.

All South River High School Robotics team hardware may not be moved, unplugged, or borrowed without lead mentor approval. Users may not tamper with or attempt to repair, remove, or make adjustments to any components of any equipment or software unless approved first by the Team Advisor. If necessary, the lead mentor can authorize the creation of a backup system that will not disturb the original system (i.e. changing IP addresses to static if DHCP is down or logging in locally if LDAP is down). These conditions also apply to South River High School Robotics team websites, emails, text messages, and broadcast across all social media venues. All public relations announcements and media will be vetted to Lead Advisor or approval before dissemination regarding upcoming SRHS Robotics team activities.

4.9 Student and Parent/Guardian Consent

Team members and their Parents / Guardians are required to acknowledge receipt of the Handbook and agree to abide by the rules and policies stated herein.

SRNJ Robotics Team 4573 Handbook Receipt / Acknowledgement Form

I understand and agree that I will read and comply with the policies contained in this Handbook and that my continued participation on the team is contingent on following those policies.

Student Name (Printed)

Student Signature

Date

Parent/Guardian Name (Printed)

Parent/Guardian Signature

Date

South River High School Rambotics Team 4573

