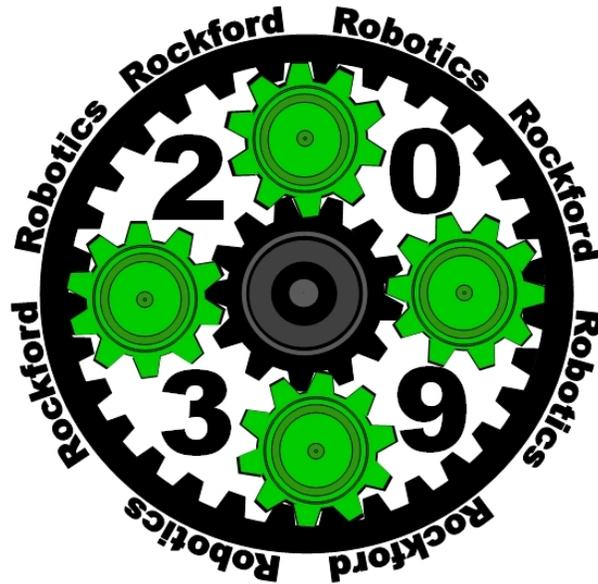


Rockford Robotics Association



FRC TEAM HANDBOOK

Table of Contents

- [Table of Contents](#)
- [Rockford Robotics FRC 2039 Overview](#)
- [Rockford Robotics Association](#)
- [FIRST Robotics Competition](#)
- [FIRST](#)
- [Goals and Priorities](#)
 - [Safety](#)
 - [Learning and Growth](#)
 - [Outreach and Community Engagement](#)
- [Team History](#)
- [Team Activities](#)
- [Team Organization](#)
 - [Mentors](#)
 - [Student Board](#)
 - [Additional Leadership Roles](#)
- [Student Member Application Process](#)
- [Member Requirements](#)
 - [Time Commitments](#)
 - [Student Contributions](#)
 - [Communications](#)
 - [Transportation](#)
 - [Health Information](#)
 - [Academics](#)
- [Parent/Guardian Expectations](#)
- [Bot Booster Club](#)
- [Funding/Financial Information](#)
- [Mentor Responsibilities & Youth Protection Program](#)
- [Student Alumni Mentors](#)
- [Workspace](#)
- [Code of Behavior and Conduct](#)
 - [Gracious Professionalism](#)
 - [Productive Meeting Time](#)
 - [Personal Electronic Devices](#)
 - [Team Technology Use Policy](#)
 - [Workshop, Equipment, and Tools](#)
- [Shop Safety Rules](#)

Rockford Robotics FRC 2039 Overview

Rockford Robotics, FRC 2039, is a *FIRST*[™] Robotics Competition (FRC) team. We are a community-based team composed of high school students from public, private, and home schools located in the Rockford, IL area. The team is mentored by adult volunteers from the community.

Rockford Robotics Association

Rockford Robotic FRC 2039 is a member of the Rockford Robotics Association. The Rockford Robotics Association is a not-for-profit organization dedicated to providing guidance and support to the Rockford area *FIRST* teams.

FIRST Robotics Competition

Dubbed a “varsity sport for mind,” the *FIRST* Robotics Competition (FRC) combines the excitement of sport with the rigors of science and technology. Under strict rules, limited resources, and time limits, 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 student can get. Volunteer professional mentors lend their time and talents to guide each team.

FRC students are given the opportunity to learn and practice specific real-world skills including computer-aided design (CAD), manufacturing, electrical and mechanical design, software development, web design, animation, video editing, photography, and graphic design.

Additionally, student are are continuously coached to develop their abilities in problem solving, time management, organization, cooperation, consensus building, public speaking, and effectively leading others.

FIRST redefines winning by rewarding teams for excellence in design, demonstrated team spirit, Gracious Professionalism[™] and maturity, and the ability to overcome obstacles. Winning means building partnerships that last.

FIRST

FIRST, For Inspiration and Recognition of Science and Technology, was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, the 501(c)(3) not-for-profit public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.

Goals and Priorities

Safety

All *FIRST* teams are expected to develop, maintain, and encourage a culture of safety. Every Rockford Robotics Association member is responsible for their safety and the safety of those around them. Each Rockford Robotics Association member is required to abide by the Safety Rules at all times.

Learning and Growth

The primary goal of all Rockford Robotics Association Teams is to provide students with the opportunity to learn and grow. Students can design, build, and program robots - applying real-world math and science concepts while developing problem-solving, organizational, and team-building skills. Through *FIRST*'s model of "Coopertition" and core philosophy of Gracious Professionalism® students learn the value maintaining a courteous and cooperative environment while being challenged by competition with peers.

Students will be given the opportunity and encouraged to take leadership roles on the team, communicate and discuss ideas with peers and mentors, and develop public speaking and presentation skills as part of regular team activities and during competitions.

Outreach and Community Engagement

At the core of the Rockford Robotics Association mission is the drive to promote education in Science, Technology, Engineering, and Mathematics (STEM) and improve our community. Rockford Robotics Association members will be expected to help design and participate in Community Outreach projects that engage the community and promote the ideals of *FIRST*, including Gracious Professionalism and STEM education.

Team History

Our team was formed in 2006 by a group of interested students and parents. This original team consisted of a dozen students and six technical mentors. They managed to recruit sponsors, find a build site, design and build a robot, and compete in a 2007 regional competition a robot.

Since these beginnings, our team continues to grow by expanding its sponsor support, building progressively more sophisticated robots, and competing at national level. We are becoming more recognizable in the Rockford area as we participate in many outreach events. As each year passes our team takes on bigger challenges and strives to improve and succeed.

Team Activities

A successful FRC team requires students willing to participate in a variety of activities. Team members have the opportunity to participate in one or more of the following functions, depending on their interests and expertise:

Robot Building:

- Drive train – design and construct robot's drive train
- Special operations – design and construct robot's special functions (arms, turret, lift system, etc)
- Electrical and programming – develops and updates robot's operating program as well as installing wiring and circuitry
- CAD – creates CAD models of the robot

Business functions include:

- Public relations – email updates, press releases and provides text for website updates
- Outreach - promotes team through participation in various community activities and presentations, such as demonstrating the robot at community events
- Finance – manages team financial records, manage sponsor relationships
- Awards – prepare award entries and presentations

Other:

- Strategy and scouting - determining the best competition strategies and collecting detailed data about our competition
- Animation – design animations for demonstrations and presentations
- Spirit – design and purchase team promotional materials
- Travel & Logistics – develop plans detailing how to get team members to and from events and competitions

Team Organization

Rockford Robotics members include students, technical mentors, non-technical mentors, and parents.

Mentors

Mentors teach students new skills, monitor student work, and provide real world engineering, building, and organizational expertise. Technical mentors have skills such as engineering, programming, design, and manufacturing. Non-technical mentors have skills in areas such as administration, education, marketing, and finance. Mentors provide guidance and suggestions, but it is the students who design, build, program, and drive the robot at competitions.

Student Board

The Rockford Robotics Association has a Student Board that guides and leads the team.. The team typically elects these student leaders during a pre-build season meeting. Students wishing to hold a leadership position must acquire mentor approval, complete an application form, and give a short presentation about their qualifications to the team. The student who receives the most votes from team members will fill the leadership position. The Student Board is organized into the following Offices:

- **Team Captain/Board President** – Represents Team 2039 in all official capacities, including FIRST competitions. Serves as chief spokesperson for the team. Supervises all business and build activities.
- **Team Co-Captain/Board Vice President** – Assists the team captain with any of his/her responsibilities. Acts as captain in cases of his/her absence. Co-Captain also acts as team treasurer.
- **Chief Robot Officer** - Responsible for successful design and manufacture of FRC robot related projects. Responsible for creating the structure for the robot 'design and manufacture' (Mechanical, Electrical, etc.) team with mentor approval.
- **Environmental Health and Safety Officer** – Responsible for creating and maintaining a safe environment and culture including maintaining safety equipment and safety plans for both the shop and travel. The EHS Officer will be expected to collect incident reports and present these to the board. And developing and implementing EHS strategies.
- **Communications Officer** - Responsible for developing and executing outreach strategy, fundraising strategy, and team branding (i.e. wristbands, buttons, flyers). The Chief Communications Officer will be in charge of the Chairman's and Awards committees.

- **Chief Competition Officer** - Responsible for robot strategy and overall competition strategy, evaluating what competitions we attend, scheduling shifts at competition, scouting, keeping records of scouting data over the years, collecting statistical data of the team (i.e. surveys at out reach).
- **Chief Technology and Education Officer** - Responsible for developing and implementing internal and external curriculum strategies, and maintaining and developing shop technologies and training strategies and competency records.

Additional Leadership Roles

There are other leadership positions on the team that are either appointed by the Student Board or elected during FRC Kickoff. Some of these positions are Sub-Team Leaders for electrical, mechanical, CAD, etc.

Student Member Application Process

Just like sports programs, Rockford Robotics Association Teams requires a commitment of time and effort by all student members. To better train and plan for our student teams, an application process for student members has been established. Students must fill out the application in order to participate on the team.

The Student Member Application is available on our website at www.rockfordrobotics.com

Member Requirements

Students are expected to actively participate in meetings, workshops, and events and adhere to our code of conduct. Students must have a regular attendance record, but more than that, they must strive to achieve real results at each meeting and constantly explore ways to improve the robot and the team itself in a proactive manner. Students are expected to **check their email** for team communications regularly, be considerate of transportation issues, and keep up with their academics. Each of these items is discussed in more detail below.

Students who would like to be invited to attend FIRST Robotics Competitions are expected to meet the requirements listed above as well as **meet a minimum time commitment of 75 hours** and **participate in fundraising events** to cover team expenses.

Time Commitments

Succeeding as an FRC Team takes a lot of hard work and time. Students do not have to attend every meeting, but are expected to make a sincere commitment to the team.

- **Sign In / Sign Out** - To receive credit for team hours, students are to sign in when they arrive at the build site and sign out when they leave. Provided funds are available, the team will aid with travel costs for students who meet the minimum time requirements. Students who do not meet the time requirements are encouraged to attend competitions at their own expense.

- **Summer Season (May – August)** - The team may meet one or two nights each week. During the summer season we do such activities as making build site improvements, design and build prototype robots, and special skills training. There are no specific summertime requirements, though we encourage students to participate in team activities.
- **Pre-Build Season (September – December)** - The FTC team meets a minimum of one night each week. The FRC team may meet one or two nights each week. During the pre-build season we prepare to build our competition robot and work on competition animation. Activities include training, especially in CAD (computer aided design), programming and safety. Potential student leaders and drive team members are required to put in a minimum of 20 hours during the pre-build season.
- **Build and Competition Season (January – April)** - During the six weeks of build season, (early January through mid February) the team meets four nights each week (M,T,Th,F) and Saturdays. Evening meetings are 5:00 pm – 8:00 pm. Saturday meetings are 10:00 am– 4:00 pm. After bagging the robot, members will continue to meet at a reduced schedule depending on the needs of the team. Student members wishing to be fully supported by the team are expected to put in a **minimum of 75 hours** during build/competition season. This 75 hour minimum does not include the time spent at competitions. Certain team positions, such as captains and robot drivers, require more time than the 75 hour minimum. Students need to be mindful of this fact when considering whether to volunteer for one of these leadership positions

Student Contributions

Like most extracurricular activities, participation in FTC is costly. Across Rockford Robotics Association, our annual budget is over \$30,000. Each year a Kit of Parts must be purchased and registration fees must be paid. Travel and lodging expenses for each competition range from \$3000 to \$5000. As our team continues to grow, so do our expenses. While sponsor donations provide a significant portion of our funding, students are asked to contribute a Team Fee to help defer some of the student's participation cost.

Additionally, each team member is asked to **contribute \$150 by January 10th** each year. Our goal is to make this contribution obligation as stress free as possible. Students from whom this would be a financial hardship should have a private conversation with the lead non-technical mentor.

Communications

Our team's main communication method is through our team email group. We will use this system to keep members informed of upcoming scheduled activities/events, changes in meeting times due to weather, and completion of required tasks. Students

(and parents) can join the Rockford Robotics group email by sending an email to rockford.robotics.2039@gmail.com

Our team also maintains a website, www.rockfordrobotics.com, which includes an activity calendar. Regular email newsletters will be sent to our students, parents, sponsors, and interested community members.

Transportation

Transportation to and from meetings is the responsibility of each individual student. Students must ensure their parents pick them up on time when meetings end. Because our students are from all over our community carpooling is encouraged. Please be mindful of the fact our mentors are volunteers who are sharing their time with students. Because no mentor may ever be alone with one single student, it may be necessary on some occasions for a parent who is picking up the second to last student to remain on the grounds until the last student's parents have arrived. Any changes to meeting times or dates will be made prior to the scheduled meeting and communicated through the team email.

Health Information

Mentors are not responsible for any medical problems that may arise while at a competition or in the 'bot shop. Parents are responsible to ensure the medical needs of their children are met. If parents have concerns regarding medical issues, they are asked to contact a team mentor.

Academics

Rockford Robotics promotes strong academics. We encourage students to maintain academic excellence and ask that they are mindful of school assignments. Students may bring homework to meetings and work on their assignments when there is "downtime" caused by the need to perform certain build tasks in sequence.

FIRST actively promotes monetary scholarships from major Universities. In the 2012/13 season over \$15 million in scholarships were available for FIRST robotics team participants, many from major engineering universities.

Parent/Guardian Expectations

Our team greatly appreciates the generous support of our parents. Being the Parent/Guardian of an FTC team member is a fun and rewarding experience. Your student will have amazing experiences unique to *FIRST* and FTC and learn and grow in many ways. However, there are some responsibilities each parent/guardian must commit to in order to ensure a successful season.

- Parents/Guardians must sign up for the Team Email List and respond to any communications labelled “**Parent Response Required**”.
- Parents/Guardians must **read and sign this Handbook** agreeing they understand each of the rules and guidelines their Student Team Member must follow.
- Parents/Guardians must sign the **Rockford Robotics Association Liability Waiver & Photo Release**.
- Parents/Guardians must sign the **Team Travel Consent Form**.
- Parents/Guardians must **provide emergency contact information** for themselves.
- Parents/Guardians must ensure students have **safe and reliable transportation to and from meetings**.

In addition, there are various ways parents can help such as:

- Attend scheduled parent meetings
- Donating food for team lunches during Saturday meetings during build season
- Assisting in administrative functions of the team
- Providing technical and non-technical mentoring during work sessions
- Providing transportation for students and/or robot to community outreach events
- Chaperoning at competitions or community events
- Donating supplies
- Assisting in fundraising and sponsor procurement
- Contributing beverages and snacks in re-sealable containers to store in the shop

Bot Booster Club

Parents and other supporters of the Rockford Robotics Association are encouraged to join the Bot Booster Club. This is a support organization to the robotics teams within the Rockford Robotics Association. The Bot Boosters Club completes defined tasks at the request of student and/or mentor leadership within the Rockford Robotics Association.

Funding/Financial Information

A team's participation in FIRST Robotics is costly. Our team is supported through corporate sponsorships, private donations and student fundraising. Parents/companies wishing to provide a donation to our team may send a check made out to “Rockford Robotics”

Rockford Robotics
605 Fulton Avenue
Rockford, IL 61103

Our major sponsors, who collectively provide more than \$20,000 annually to our organization are the following companies:



Mentor Responsibilities & Youth Protection Program

FIRST strives to create an environment in which team members can grow, learn, and have fun with minimal risk of injury.

The *FIRST* Youth Protection Program (FIRST YPP) provides 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. FIRST YPP forms and information are available at <http://www3.usfirst.org/aboutus/youth-protection-program/>

Student Alumni Mentors

With the growth of *FIRST* in our community, we encourage Rockford Robotics Alumni to mentor another area *FIRST* team. Upon request, the Rockford Robotics Association is willing to help you network with other local teams who may be seeking mentors. To aid in the transition between student member and mentor, student alumni from the Rockford Robotics Association may not mentor a Rockford Robotics Association team for 4 years after their high school graduation date. We support Rockford Robotics Association alumni to periodically visit our shop while pursuing further education and/or work experience during this four year period. If you are interested in mentoring for the Rockford Robotics Association after this time period we encourage you to engage in dialogue with the lead mentors on the Rockford Robotics Association team. Mentoring entails a different skill set from student membership which may require some additional training to best transition you from student member to mentor member. Your willingness to learn and grow as a mentor will be critical to our association's success.

Workspace

Our team is fortunate that Eigerlab/Techworks provides a build site for us. Eigerlab is a place of business, therefore we require that:

- Do not wander into other areas (only exceptions are shared public spaces such as the lunchroom and restrooms.)
- Be respectful of other Eigerlab/Techworks users 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. Clean up food wrappers and drink bottles each day.
- Students must be supervised by at least two mentors 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 student. Food and drinks should not be consumed near machinery, computers, robots or electronics.

Code of Behavior and Conduct

The Rockford Robotics Association requires that all Team Members maintain a positive, safe, and respectful environment conducive to learning and building robots.

Gracious Professionalism

Gracious Professionalism is the embodiment of the FIRST philosophy. It is how we should strive to act, whether we are being watched or not, and in a way that would make those we admire most proud. Gracious Professionalism demands that we treat others with kindness and respect, communicate with one another clearly and honestly, and resolve conflicts and misunderstandings immediately. At every Team related activity, we are representing the entire Rockford Robotics Association, its Sponsors, and *FIRST* in general, and are required to behave in a Gracious and Professional manner.

Productive Meeting Time

Coaches, mentors, and parents volunteer their time to provide an educational and fun environment where you can meet with friends and build robots. Student Team Members work hard to accomplish team goals. When anyone acts in a disruptive manner, it hurts the entire team. Student Team Members deemed to be wasting meeting time or distracting other students will be asked to leave.

Personal Electronic Devices

Technology devices like cell phones, tablets, and laptops play a crucial role at the core of many of our team activities. However, these devices can often be sources of distraction and wasted time. Cell phone usage during meetings should be limited to important communication only, such as calling a parent. Texting, playing games, or other activities not related to the Team must be kept to an absolute minimum.

Team Technology Use Policy

The Rockford Robotics Association provides technology for student team members to use for Team related activities. Team members must not install any unauthorized/illegal software on any machine for any reason. Team members must not place passwords on any devices without express permission from a Coach or Mentor. Technology devices must never be removed from the Bot Shop without express permission from a Coach or Mentor.

Workshop, Equipment, and Tools

The Rockford Robotics Association provides space and tools for student team members to use for Team Related activity. The Bot Shop and its many resources must always be respected and cared for. Clean up after every activity, and return items to their proper place. If something gets broken, inform a Coach or Mentor. Food and drinks are allowed, but must be stored and disposed of properly. Never use a tool or piece of equipment without the proper training. For power tools and machines, this includes a documented training certificate. Tools may be used for personal projects only with express permission from a Mentor or Coach.

Shop Safety Rules

Absolutely no entering the shop without **at least two** adult mentors present.

When handling power tools, working on the robot, or operating machine tools, **safety glasses** (*preferably clear*) are required.

Always wear closed toed shoes in the shop (*flip flops, sandals, or crocs of any kind are prohibited*).

Remove or tie back any loose or dangling hair, jewelry, ties, or hoodie strings when working with power tools or machine tools.

Keep the shop and your work area clean. If you make a mess please clean it up.

You must have permission from a mentor or coach to operate any tools and/or the robot.

Never work on the robot while it is enabled. Always ensure the robot is “all clear” before enabling or driving it.

Do not use power tools or machine tools without proper training for that equipment.

Absolutely no horseplay or violence in the shop.

Report any injuries in the shop to the EHS (*environmental health and safety officer*), the safety captain, or a mentor.