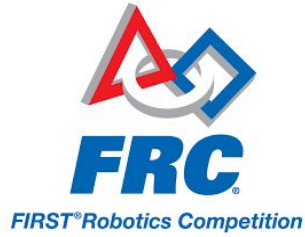


# Missoula Robotics Team

FIRST 3216, Missoula County Public Schools



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## **Purpose and Introduction**

The purpose of this handbook is to communicate rules and expectation for students, parents, and mentors that are participating or associated with the robotics team. In addition give an outline to team structure and history. All rules and expectations shall be followed at all times.

### **Mission Statement:**

Our mission is to inspire future generations to be leaders in the fields of science, technology, engineering and manufacturing, by engaging with them in the FIRST Robotics Competition (FRC) mentor-based program that builds manufacturing and engineering skill, drives innovation, and develops life skills including leadership, work ethic, and communication.

### **Team Summary:**

FIRST Team 3216 was founded in 2009 by Chris Jacaruso, a Missoula County Public Schools (MCPS) industrial arts teacher. Initially, the team began with 14 members from Hellgate High School and was housed in Hellgate High School's shop space. At that time, the team only had 4 mentors that were either teachers or parents on the team. In 2011, the team moved to the Sentinel High School shop and opened the program to all Missoula high school students to help the team grow.

Currently, the team has 24 members that come from Sentinel, Big Sky, and Hellgate high schools. In addition to team members, there are a total of 7 mentors that assist in the building and organization of the team.

## **Team Overview**

### **Team Membership:**

Membership on the Missoula Robotics Team is a year round commitment, with the majority of hours occurring from January-February. If students are interested in joining the team they first need to show up to the first team meeting. During this meeting they are introduced to all the mentors and other team members. Along with learning the requirements of the team and the

expectations that they are required to uphold. After this initial meeting the team then holds a parent meeting to explain to them the commitment their children are doing and how they could help them succeed. Past team members are expected to uphold all the standards of the new team members.

To help the team knowledge base increase and avoid the development of a skills gap the team is working to established a student mentor program. Starting this January senior team members are paired up with one or two new members that are interested in the same area as the senior member. Throughout the year it is this student's responsibility to teach new members different skills that are essential to the team. By the end of the season the goal is these new members should be on their way to possessing the skills needed to keep the robotics team flourishing.

## **Team Structure:**

### **Parents**

- Assist in fundraising events.
- Establish a parent group to search for funding outside of the school district.
- Support students during the build season.
- Provide optional meals during the build season to support students.

### **Mentors**

- Teach students skills in manufacturing, leadership, business development, and engineering skills.
- Inspire students to pursue careers in STEM or Skilled Labor.
- Encourage teamwork and respect while maintaining a positive atmosphere.

### **Team Captain**

- Help lead the start of the team meetings.
- Develop work plan and oversee completion of all team goals.
- Promote student involvement on the team and in First.
- Establish a weekly meeting with other captains to discuss the team's progress.
- Review all award submission with business captain.

### **Robot Captain**

- Oversee the competition robot building and any robot related projects.
- Work with controls lead and mechanical lead to develop build schedules.
- Make sure all build team members are engaged and on task.
- Lead the creation of offseason projects and fundraising merchandise.
- Run meeting in Business Captain's Absence.

### **Mechanical Lead**

- Develop and maintain complete material and tools inventory
- Teach students how to use different shop equipment and shop safety.
- Collect and process any part orders required by any of the build teams.
- Manage CAD, Chassis, Mechanisms, and Playing Field Teams
- Develop a build schedule with Robot captain for the mechanical portion of the robot.

### **Controls Lead**

- Manage current and future development of all robot code.
- Develop a strategy of sharing and allowing multiple programmers to work on the same code.
- Keep a backup history of all robot codes and iterations to roll back too.
- Create a timeline of the electronics installation and programming on both practice bots and competition robot with Robot Captain.
- Develop and maintain complete electronics and wiring inventory.
- Manage Programming and Electrical Team.

### **Build Teams**

- **CAD Team**
  - Convert prototypes to a CAD 3D model.
  - Develop the over construction and envelope of the robot.

- Make sure all sub mechanism integrate with each other and fit on the robot.
- Interface with members on the build team for constructability and prototyping.
- **Chassis Team**
  - Construct the base frame of the robot based on the CAD team drawing.
  - Assemble and install all transmission and powertrain items.
- **Mechanism Team**
  - Build any mechanism that does not fall under the chassis team.
- **Playing Field Team**
  - Build scaled and full size game pieces to aid in prototyping and testing.
- **Electrical Team**
  - Create test platforms for the programmers to work with.
  - Install and check all electronics on robots.
  - Help maintain electronics inventory.
- **Programming Team**
  - Develop all teleoperated and autonomous code for robots.
  - Interface with Electrical Team on what electronics are installed and any additional electronics that would be needed.
  - Interface with the Mechanical Teams to establish how each thing should function in order to develop code.

### **Business Captain**

- Develop and maintain team budget files.
- Lead fundraising programs with the help of the mentors.
- Coordinate all business presentations.
- Research grant, sponsorship, and tool donation possibilities.
- Give a weekly team update on current fundraising standings.
- Manage both media and awards subteams.

### **Media Lead**

- Manage team outreach on both the internet and in Missoula.

- Lead media task through completion.
- Manage the team website, Facebook, and any other social media platforms.

### **Awards Lead**

- Manage all award submissions and deadlines.
- Edit and submit all rewards for review to the Mentors and Team Captain.
- Work with Media Lead on developing media for awards.
- Help keep the Student Information Member System (STIMS) up to date.

### **Business Teams**

- **Media Team**
  - Keep the team website updated.
  - Maintain at least weekly post on the social media pages.
  - Create Youtube Videos during the build season and competition.
  - Create media items for distribution (flyers, banners, pamphlets, etc.)
- **Awards Team**
  - Write and gather all items needed for awards.
  - Make sure Chairman's award is created.
- **Fundraising Team**
  - Help develop new fundraising ideas.
  - Reach out and set up business presentations.

## **Missoula Robotics Team Student Code of Conduct**

The Missoula Robotics Team Student Code of Conduct ensures that students are productive in a positive atmosphere. Students are expected to know and abide by the code. Students will be accountable for all of their actions and the following may occur for infractions of the code.

1. Documentation of infraction Verbal Warning .
2. Documentation of infraction and letter sent home.
3. Student and Parent/Guardian Meeting with lead mentors.
4. Dismissal from the team

Steps listed above may be skipped based on the severity of the infraction. The students responsibilities are listed below.

### **General Rules:**

1. The team communicates by email. Members must ensure that the mentors have a active email address and that they are checking their email daily.
2. Cell phones are to remain off or put away during team meetings unless being utilized for robotics related tasks.
3. Members are expected to be on time for meetings or notify mentors of absence.
4. Student members must remain on task at all time.
5. Student members must not distract other members that are working.
6. Students must act in a gracious and professional manner.
7. Students, mentors, and parents will treat one another with respect.
8. Student members are expected to maintain good study habits and grades during the season.
9. Student members will show respect to all MCPS, Team, or Competition property.
10. Student members must abide by all rules listed in the Big Sky, Sentinel, or Hellgate High School student handbooks.
11. Student and mentor members must follow all safety rules outlined on the safety handout and below.

### **Safety:**

Safety must be practiced at all times when at robotics meetings. The following rules ensure the safety for students, mentors, parents, and any visitors to the robotics team.

1. Always wear eye-protection in the shop.
2. Remove or correct loose clothing, jewelry, and hair when operating machines.
3. Closed Toe Shoes required at all times.
4. Abide by all machine safety rules.
5. Use only equipment that mentors trained you on.
6. Report all unsafe conditions to the mentors immediately.



7. Avoid talking too or distracting machine operators.
8. Under no circumstance in running, throwing objects, horseplay, or making unnecessary loud noises permitted in the shop.
9. Report all accidents to mentors immediately.
10. Ask a mentor for assistance when uncertain of safe procedures.
11. No nylon based clothes or shoes permitted when using welders, torches, or plasma cutter.

### **Attendance:**

Attendance to meetings and team events is an important part of being on the team. It ensures that students and mentors can be counted on and meet set deadlines. Unplanned absences greatly disrupt the program and are not tolerated.

1. During the build season attendance will be taken every meeting.
2. The mentors will be incharge of monitoring attendance.
3. Students are required to inform mentors if having to leave practice early.

### **Competition:**

1. Students selected for the travel team must represent MCPS and the Robotics team in a professional manner. Under no circumstance is heckling or rude behavior to other teams allowed.
2. Students must adhere to all competition center rules and never leave the competition center without a mentor.
3. During competition attendance will be taken on the bus in the morning, the afternoon while at the event and on the bus leaving the competition. Along with a room check and lights out check in the evening at the hotel.
4. Students must maintain a minimum group of four when going to dinner, along with notifying mentors on where they are going.
5. Any infraction will be taken up with the student's high school on actions required.

## **Travel Qualifications**

Due to team size and limited funding all members may not be able to attend a competition. It is advised that students work to maintain their competition eligibility since the competition is the highlight to the team's hard work. The following are requirements that must be met in order to attend.

1. Must log a minimum of 55 hours of activities.
  - a. 45 hours of build season work.
  - b. 5 hours of fundraising.
  - c. 5 hours of additional build season, fundraising, public outreach, kickoff, or presentation.
2. Student must be in good academic standing as defined by MCPS.
3. Must complete all required paperwork and forms.
4. Must contribute to raising \$300 by working craft fair booths, presentation/sponsorship outreach, concession stands, or any other opportunity outlined by mentors.

## **Student Leadership**

There are multiple leadership roles that students may fill that are listed in the team structure. Based on student interest all the roles may not be filled, if a role goes unfilled it may become up to the mentors to make sure the roles task are being done. If students are interested in these roles they should speak with the lead mentor. The following is the selection process for the roles.

1. Students interested in a role must speak with the lead mentors.
2. Students must engage in a formal interview process with the lead mentors on their ability to fill the role. The mentors will also outline the expectations of the students in these roles.
3. Once selected students must assume full responsibility of the role.

4. Each role has a single year term limit and students must reapply at the first part of the school year.

## **Faculty Advisor Responsibilities**

The robotics team is composed of two faculty advisors that are employees of MCPS. These individuals serve as advisors and mentors for the team. In addition they help facilitate team operations, account management, and any requirements from the school district. More specifically their responsibilities are as follows.

1. Assume full responsibility for the safety and welfare of students and mentors.
2. Serve as a liaison and contact with the school district administration and the team.
3. Assume full responsibility for handling funds, oversee expenditures, opening purchase orders and order of any materials.
4. Arrange travel and accommodations as required for competitions.
5. Serve as a liaison between FIRST and the team.
6. Facilitate the team letter requirements.
7. Oversee all team meetings.
8. Ensure the team has reserved school district facilities like the shop and classroom spaces.

## **Mentor Responsibilities**

The soul of the robotics team is it's mentors that volunteer their time outside of their professional lives to help teach the student life skills. They are a part of designing, building, marketing, and fundraising for the team. This team would not be possible without the folks that mentor. Their responsibilities are as follows.

1. Motivating and engaging students into meaningful activities in the designing, building, marketing, and fundraising.
2. Create an atmosphere of open communication, active listening, trust, respect, and maintain a positive attitude at all times.
3. Help students meet deadlines throughout the robotics season.

4. Provide a positive role model experience to students by controlling offensive language, following safety rules, and engaging in constructive behavior.
5. Allow students to do as much work as possible while remaining ready to step in when needed.
6. Following all of MCPS volunteer guidelines.

## **Lettering Requirements**

Students participating on the robotics team have the unique opportunity to be able to letter at their High School. Lettering is an award that goes to students who exceed expectations and strive to help FIRST continue to grow. The requirements for lettering are listed below.

1. Must log a minimum of 70 hours of activities.
  - a. 60 hours of build season work.
  - b. 5 hours of fundraising.
  - c. 2 Hours of volunteering at a FIRST event.
  - d. 3 Hours of volunteer work outside of robotics.
2. Travel with the team to one competition event.
3. Be a role model to other students by following the code of conduct.
4. Maintain good academic standing as defined by MCPS the entire time they are on the team.
5. Must contribute to raising \$400 by working craft fair booths, presentation/sponsorship outreach, concession stands, or any other opportunity outlined by mentors.

I \_\_\_\_\_ have read and reviewed the following handbook with my parent/guardian and am committed to following and upholding the standards outlined. I understand that there will be consequences for my actions if I break these rules and may be removed from the team.

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Student Name (Printed)

Signature

Date

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Parent/Guardian Name (Printed)

Signature

Date