



Student Manual

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Section 1: Introduction

1.1 About Roxbotix

The Roxbury Robotics Team of Roxbury High School, also known as Roxbotix, was founded in 2012 by a small group of motivated students at Roxbury High School. The team has grown to about 50 active student members in the 2015-16 school year. The team participates in the FIRST Robotics Competition (FRC) every year, and is known in the competition as Team 4361. Ultimately, the team's mission is to increase awareness of the need for STEM education in the community by building, competing with, and demonstrating robots. Since its founding, the team has been accomplishing this mission by fielding competitive robots in the FRC's annual competition and giving demonstrations at many community outreach events such as

- Ole Suckasunny Day
- The EMS Science Fair
- The RHS Homecoming Football Game and Pep Rallies
- Picatinny Arsenal Media Day
- The New Jersey State Fair
- Wharton's Canal Day Festival

Additional activities have included lobbying US congressmen in Washington DC through participation in National Advocacy Conference, as well as giving many demonstrations at the elementary schools in the Roxbury Township School District. Students have also provided their time to help EMS students with First Lego League and FIRST Tech Challenge robots. Our future focus is to involve the majority of the team in future community events and outreach activities. We will also be participating in philanthropic activities as well and have adopted a portion of Righter Road through the Adopt-a-Road program of the Roxbury Township's Department of Public Works. We plan to make a larger impact on the community as the team grows and matures as an organization.

1.2: About FIRST Robotics

FIRST is an international, philanthropic organization started in 1989 by inventor Dean Kamen, a native of New Jersey. FIRST, whose name is an acronym *for For Inspiration and Recognition of Science and Technology* programs aims to create passion for science and technology in students. In the competition programs it runs, including the FIRST Lego League, the FIRST Tech Challenge, and the FIRST Robotics Competition FIRST encourages gracious professionalism and sportsmanship at all times. Through participation FIRST, students build technical skills, and foster teamwork and leadership skills.

In the FIRST Robotics Competition (FRC), every January and February, teams are charged with designing and building a robot to compete in that year's robot challenge, with the competitions being held in March and April. Teams must design and build a robot to detailed specifications within a 6 week timeframe and are forbidden from working on their robot once this time has ended.

In addition to building a robot, students learn to spread their passion for science and technology in our community, raise funds to support building the robot, and manage a budget. FRC caters to a variety of interests: computer science, engineering, physics, math, graphic/video artistry, business, communications, and writing. No matter where your interests are, there is something waiting for you on our team!

For more information on FIRST, please visit www.usfirst.org or The ROXBOTIX website, www.roxbotix.org.

1.3 Team Expenses

There are substantial costs associated with designing and competing in a season of FRC. These costs include event registration, robot materials, tools and equipment, marketing materials, and the stipend for an assistant to the advisor. The team's annual budget is approximately \$20,000, which is typical of most FRC teams. While the school district provides about 40% of this, and the US Department of Defense funds another 25%, 35%, or nearly \$7000 of each year's expenses must be raised by the students through sponsorships, grants, donations and fundraising activities. This is a challenging undertaking, but it is achievable through diligence.

Section 2: Team Organization

2.1 Advisors

The lead advisor of the team is Mr. Lee Hayden, who is also the computer science and robotics teacher at Roxbury High School. Mr. Hayden has been in this position since the 2012-13 school year. The assistant advisor is Mr. Phil Moskowitz, who is the technology teacher at the Eisenhower Middle School.

2.2 Mentors

Mentoring by adults is one of the important aspects of the FRC program.

FRC Mentors are adult volunteers who donate a great deal of their time and effort to help students achieve success. Mentors assist with team organization, technical support, and support students in all aspects of running an effective team.

FRC Mentors play a vital role in the success of their students. Mentors work extensively with team members during the build season, designing, building, and fabricating a functional competition robot within a very short timeframe. Their expertise is critical and they serve as professional role model for student team members.

For more information about FRC mentoring, see

http://www.firstinspires.org/sites/default/files/uploads/resource_library/frc/game-and-season-info/2015-frc-mentoring-guide.pdf

2.3 Team Structure

The team is more like a small enterprise than a student club. Accomplishing the team's mission means there are many roles, for students with technical and non-technical interests. The team is composed of the following sub-teams, each with their own area of responsibility.

The Engineering Sub-team-responsible for using computer aided design software such as Autodesk Inventor to make precise models of the competition robot's components and parts.

The Mechanical Sub-team-responsible for assembling the competition robot, and managing all tools, parts, and supplies.

The Electrical Sub-team-responsible for designing and implementing the electrical system of the competition robot.

The Programming Sub-team-responsible for writing and implementing the computer code the competition robot relies on for its functionality.

The Business Sub-team-responsible for fundraising, finding sponsors, and creating team marketing materials.

The Safety Sub-team-responsible for creating and implementing procedures that ensure students and mentors work with tools and materials in a safely and without injury

The Dive Sub-team-responsibile for driving the robot at all competitions.

2.4 Leadership Structure and Eligibility

Depending on the season, the team will have either 1 captain, or 2 co-captains. These positions require a high degree of dedication and involvement. Any student in one of these positions is responsible for coordinating sub-team activity and team demonstrations throughout the year. Captains and co-captains work closely with Mr. Hayden to achieve team success on and off the competition field.

Each sub-team will also have at least one designated leader, responsible for overseeing all activities of their sub-team, including overseeing and training students, and interacting with mentors.

All leadership positions require a student to have completed 1 season on the team. Captain and co-captain responsibilities require the student be present at 80% of all team meetings, demonstrations, and competitions.

Section 3: Student Responsibilities

3.1 Attendance

As with most activities, the value derived through participation in Roxbotix is proportional to the amount of time and effort put into the participation.

Although there is no minimum attendance requirement for the team at this point in time, selection by Mr. Hayden for any leadership position and position on the competition Drive Sub-team will be based at least partially on a student's rate of attendance at all team activities. Mr. Hayden also reserves the right to deny a student the ability to be a member of the Drive Sub-team or travel with the team to competitions or demonstrations because of poor attendance. Students in danger of this will be given advanced warning

3.2 Acceptable Behavior

Student behavior is governed by the Roxbury Township Board of Education's Student Discipline/Code of Conduct policies, which may be found here <http://www.roxbury.org/domain/46>

Any behavior which jeopardizes the physical safety and/or emotional well-being of a student will not be tolerated. As a result of the role of machinery and power tools in the team's activities, adherence to safety procedures is absolutely crucial.

Parents and/or school administrators will be notified of such infractions and of appropriate discipline, which may include but is not limited to permanent removal from the team.

3.3 Communication

Since the Roxbury Robotics Team is a year round activity which typically meets throughout the school year and in the summer months, communication concerning logistical matters important to the success of the team. Mr. Hayden communicates with the team and parents in many ways. These include.

Google Calendar, which is embedded into www.roxbotix.org

Google Classroom

Email

The remind.com group texting service

All important messages are sent through remind text messaging and Google Classroom. Students should see to it that they subscribe to both of these services. All important documents, including permission slips and other required forms will be posted in Google Classroom and often on www.roxbotix.org. It is the responsibility of students to read all messages and respond in a timely manner when it is requested.

3.4 Student Financial Obligations

Competing in the FIRST Robotics Competition is an expensive undertaking, and the team has an annual budget of around \$20,000, which includes approximately \$7000 for entrance fees, \$10,000 for robot components and materials, and \$3000 for tools and services. Because of this, students are tasked with raising approximately \$7000 of this amount.

Because of this, for the 2016-17 school year, students are required to raise or contribute \$100 toward team expenses. Although students may still participate with the team and its activities without making this contribution, students must raise this amount by February 28th each year in order to travel with the team to official FRC competition events, and serve on the Drive Sub-team and in any official capacity the pit area at these events.

There will be many fundraising activities for students and their parents to participate in. Individual fundraising accounts are maintained for students, so that each student is credited with the results of his/her individual fundraising efforts. Students may elect to make a \$100 donation to the team (which is tax deductible) instead of raising the \$100

through fundraising activities. They make a donation equal to the difference between \$100 and the funds they have raised.

Attending competitions in an official capacity is completely voluntary, and students who do not attend competitions are not entitled to a refund.

3.5 Community Events/Outreach

The greatest opportunities to share what Roxbotix is all about, and who we are, is through the Community Events that we set-up each year. All members are encouraged to attend as many events as possible, with a required commitment for each team member to attend a minimum of 2 Community Events.

3.6 Parental Involvement

Parental involvement is critical for the team's success as an educational organization. The team needs every family to lend a hand when possible, and welcomes parental support. There are many ways for parents to participate. These include

- Being a chaperone at competitions.
- Being a chaperone at the build site (RHS Rooms L203 and B115) during the build season.
- Bringing food for the team for its Saturday build sessions in January and February during the build.
- Assisting the team with fundraising.
- Assist the team with community education and outreach events.
- Lending engineering, programming, construction, electrical, business, or public relations skills to the team at any time.

More opportunities will be available throughout the year. We especially need assistance with food for the team during January and February.

The advisors, lead mentors and parent volunteers will frequently send out emails to ask for and encourage parents to be involved. . We need every member's support, both student and parents, in order to make the team a success. Being involved is both fun and rewarding.

Section 4: Handbook Agreement

FRC Team 4361

Handbook Agreement 2016-2017

Please complete this form and return by Friday 1/6/17.

For completion by student:

I, _____, as a student participant on FIRST Robotics Competition (FRC) Team 4361, Roxbotix, agree to abide by all the policies stated in the FRC 4361 Team.

Handbook Student Signature _____ Date _____

For completion by parent/guardian:

I, _____, as a parent/guardian for a student on FRC 4361, Roxbotix, agree to abide by all of the policies therein.

I permit my child to utilize power tools while under adult supervision, with proper training, and proper safety equipment.

I also do not object to any photo of my child appearing on team social media postings, and photos accompanying news releases, including but not limited to the team's web site, YouTube, and Facebook accounts. Student names are never provided with any such online posting.

Parent/Guardian Signature _____ Date _____

Emergency Phone # _____.

Preferred Email Address # _____.