



# FRC Team 1360 Handbook

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# FRC Team 1360 Handbook

(For students, mentors and parents or guardians)

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## Introduction

The purpose of this Handbook is to communicate the policies, procedures and practices of the Oakville Community *FIRST* Robotics team.

The Board of Directors and mentors will encourage and support our student members to make most of the decisions and to implement the actions required to accomplish the goals embodied in our Team mission and vision statements. This philosophy is incorporated in the procedures described in the Handbook.

Note that the overall authority for decisions related to the team resides with the Board of Directors. If a situation arises such that, in the judgement of the Board of Directors, it is inappropriate to pursue a decision made by the student members, then the Board of Directors may modify the decision, to ensure the team's success. These situations should be rare, since the Board of Directors and mentors work closely with student members to help them make appropriate decisions and develop realistic plans of action.

## Welcome

Welcome to FRC Team 1360, Orbit Robotics!

We provide an opportunity to experience “real-life” hands-on learning in many Science Technology Engineering and Math (STEM) areas, including process development, computer-assisted design, mechanical and electrical engineering, and program design and coding, all in a dynamic setting.

Our community-based team is not affiliated with any school board.

The team offers a stimulating and friendly environment to enhance your leadership, presentation, teamwork and problem-solving skills. You will work with dedicated volunteer mentors who together have over 160 years of experience guiding students on FRC teams.

With the team, you will enjoy collaborating with other enthusiastic high school-aged students who contribute to the many aspects of our Team including STEM, business and fundraising, communications, promotions and social media.

Most Team meetings are in the evenings and generally their timing does not conflict with other after-school activities.

## FRC Team 1360

### Contact Information

Our contact information is:

Oakville Community *FIRST* Robotics Team Inc.  
c/o Peter Lowes  
371 River Side Drive, Oakville, ON L6K 3N6  
[plowes@1360.ca](mailto:plowes@1360.ca)

Our website is [www.1360.ca](http://www.1360.ca).

## Where We Meet

Our main meeting place is currently at the following location:

2416 Wycroft Road, Unit 2, Oakville, Ontario L6L 5W2 (the home of one of our sponsors, Woodoer, Inc.)

Note however that we may meet at other locations. Meeting locations and times will be advertised in TeamSnap (as described in the later “Team Internal Communication” section).

## FIRST and FRC

*FIRST* Robotics Canada, a registered charity, was established in 2001 with a mission to inspire Canadian high school and elementary school students to pursue further studies and careers in science, technology, engineering and mathematics. It promotes its mission primarily through offering opportunities for students, working in teams and assisted by expert volunteer adult mentors, to build robots and to take part in tournaments which feature on-field competitions, judged awards and other forms of recognition, potentially including university and college scholarships. The mission of *FIRST* Robotics Canada is:

- We inspire young people to pursue further studies and careers in the fields of science, technology and engineering;
- We celebrate success in science, technology and engineering through robotics competitions for students at the elementary and secondary high school levels;
- We develop communication, leadership and teamwork skills in our youth;
- We engage the community through mentorship, sponsorship and volunteering at events.

Age-relevant programs are offered at four levels:

- *FIRST* Robotics Competition (FRC) is for students in grades 9 to 12.
- *FIRST* Tech Challenge (FTC) is for students in grades 7-12
- *FIRST* LEGO League (FLL) is for students aged 9 to 14.
- *FIRST* LEGO League Junior (FLL Junior) is a non-competitive program for students aged 6 to 10.

## Team History

In the spring of 2015 a group of adult volunteer mentors with over 150 collective years of experience in mentoring FRC teams decided to establish a Community based *FIRST* Robotics Team. Its goal was to provide the *FIRST* experience to high school aged students whose schools did not have FRC teams, or where the schedule of their school FRC team conflicted with the student’s other interests. The Sheridan College Skills Training Centre in Oakville offered its extensive workshops and classroom facilities as a base for the new team.

We incorporated as a not-for-profit organization and started recruitment and fund-raising in July 2015. Starting in September the team met every Wednesday evening and occasional Saturday mornings and members were trained in Java programming, SOLIDWORKS design skills, and the safe use of the machine shop tools and equipment.

Our fund-raising activities were quite successful raising \$30,000 in donations and in-kind contributions from a wide range of sponsors. With student membership fees, our total revenue was approximately \$40,000.

In January 2016, our first competition season started. Working four weekday evenings and all day Saturday for six straight weeks we completed the robot by mid-February. In our first competition, we placed 15<sup>th</sup> place out of 31 entrants, followed by an 8<sup>th</sup> place finish out of 52 competitors in our second competition.

At our first RoboScience Expo outreach event, parents enquired how their younger children could participate in *FIRST* programs if their school did not have a *FIRST* team. The level of interest was sufficiently high that we decided to register a new Oakville Community FLL team for students in Grades 4 to 8. Some senior team members volunteered to help mentor this new team. Demand for this new team was so high that we started with *two* teams in the inaugural year, and increased to three FLL teams the next year.

The high level of participation in our FRC and FLL teams have confirmed there is an unfulfilled demand to deliver *FIRST* programs to students whose schools do not offer *FIRST* programs. Our teams, and the eventual incubation of additional FRC and FLL teams, will help inspire young persons in Halton and Peel to develop a passion for science, technology, engineering and mathematics and provide them with valuable life-skills.

Off-season we run drop-in training clinics on topics such as Java programming and SOLIDWORKS design skills for interested students. We also run outreach events to promote science and technology to younger students, and demonstrate various robots.

Team membership varies, but we typically have approximately 50 to 60 students registered in our FRC team, from a total of approximately 15 different schools. Our FLL teams have approximately 40 students registered, from a total of approximately 13 different schools.

### Team Mission, Vision, and Values

Our mission is to inspire students to be STEM leaders by providing real-life STEM experiences.

Our team embraces the vision that we are not just people building robots, but we understand that the FRC experience is actually about robots building people. We strive to not only increase STEM enthusiasm, excitement, and education, but more importantly to give our students confidence, an abundance of leadership opportunities, a chance to hone their presentation skills, and the ability to work as a team.

Our team spreads enthusiasm for STEM by having stimulating member training programs driven by senior student members, and through community outreach. We encourage students to lead in organizing and presenting at these events, providing leadership and public speaking opportunities for all interested students. We also motivate our students to initiate contact with prospective financial sponsors and make presentations to solicit donations.

The *FIRST* philosophies of *Gracious Professionalism*<sup>®</sup> and *Coopertition*<sup>®</sup>, and the *FIRST* Core Values are emphasized in everything we do.

From <http://www.firstinspires.org/about/vision-and-mission>:

*Gracious Professionalism*® is part of the ethos of *FIRST*. It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With *Gracious Professionalism*, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended. In the long run, *Gracious Professionalism* is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity.

*Coopertition*® produces innovation. At *FIRST*, *Coopertition* is displaying unqualified kindness and respect in the face of fierce competition. *Coopertition* is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete. *Coopertition* involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. *Coopertition* means competing always, but assisting and enabling others when you can.

*FIRST Core Values*: We express the *FIRST* philosophies of Gracious Professionalism and Coopertition through our Core Values:

- Discovery: We explore new skills and ideas.
- Innovation: We use creativity and persistence to solve problems.
- Impact: We apply what we learn to improve our world.
- Inclusion: We respect each other and embrace our differences.
- Teamwork: We are stronger when we work together.
- Fun: We enjoy and celebrate what we do!

## Team Charitable Status

As of June 2018, the Oakville Community *FIRST* Robotics team meets the requirements for tax-exempt status as a registered charity under the Income Tax Act. The team is therefore now able to issue tax receipts for donations to the team.

## What to Expect

We think of the year as composed of different seasons: off-season, build season, and competition season.

### Off-Season

We start in September with our off-season. This is when we get organized and trained for the skills needed in build season, such as Java programming, SOLIDWORKS design, and the safe use of the machine shop tools and equipment. The media, awards, business, and outreach sub-teams are also very busy during this time.

We meet weekday evenings, with different sub-teams meeting on different evenings, allowing team members to train in multiple skills. Meeting typically start at 7:00pm or 7:30pm and last two hours; there may also be occasional meetings on Saturday mornings. A full team meeting is held no less

frequently than every four weeks. Meeting locations and times will be advertised in TeamSnap (as described in the later “Team Internal Communication” section).

All team members are encouraged to learn and participate in many sub-teams and events during this time.

Sub-teams may also have specific off-season projects for team members to participate in.

The team also typically participates in two off-season competitions, using the previous year’s robot. All team members are encouraged to attend these competitions.

## Build Season

Build season starts on the first weekend in January, when *FIRST* has the annual FRC “kickoff” at which the year’s game that is to be played is released. For the next six weeks, the team must design, build, program, and test a robot that is ready to compete in the competitions. We aim to build two identical robots, one for practice and one for competitions.

## Game Analysis and Strategy

Before any design, build, or programming happens, it is very important to understand and analyze the game to figure out the game strategy - what the robot will do, and what the robot won’t do.

All team members participate in this process.

The first step is figuring out team goals and objectives.

Goals should be SMART:

- Specific: Goals should be well defined, clear to anyone with basic knowledge of the team.
- Measurable: You should be able to know if the goal is achieved or not.
- Action-oriented: There should be practical steps that are required to achieve the goal.
- Realistic: The goal should be attainable within the constraints of available resources, knowledge, and time.
- Time-based: There should be enough time to achieve the goal, and you should state when it is to be achieved.

Objectives are the means by which a goal is attained; they are steps that must be completed in order to achieve the goal.

The robot is one aspect of how these goals and objectives will be met. Always keep these goals and objectives in mind when determining the game strategy.

The strategy is how you will meet your objectives; it is the general path you will take. For example, if the team strategy is to focus on scoring balls into a lower net and blocking other robots, we may decide not to have a high-net shooter.

A great reference for this section is available at the following link, it is suggested that all team members read it before the game is released: [http://www.simbotics.org/files/pdf/effective\\_first\\_strategies.pdf](http://www.simbotics.org/files/pdf/effective_first_strategies.pdf)

Once the game is released, everyone on the team must read and understand the rules, including how scoring works.

The team then discusses the game and game rules and brainstorms ideas and strategies for designing the robot and playing the game. Trade-offs, such as between speed and power, must be considered.

Once a game strategy has been decided, then the tools and skills needed to accomplish this strategy are determined. This is when the design process starts.

Typically, the team aims to build two identical robots, one for competition and one for practice.

#### Build Season Decision Process

The team must agree on a game strategy. This game strategy prioritizes the game tasks that the team proposes to accomplish, and will be developed following an analysis of the score points in the game, and the team's assessment of the probability of attaining these points. All Sub-Team activities during the Build season will be scheduled around the game strategy priorities.

Strategy meetings can be very intense! Some guidelines that should be followed in agreeing on a game strategy are:

- Decisions affecting the overall goals of the team and game strategy should be made by all team members. If necessary, team members will vote on specific strategies, with each student team member present having one vote. Mentors will guide the discussions and facilitate the vote, but will not have a vote themselves. Ties will be broken by the Team Captain.
- Decisions related to the implementation of the strategy should be made by the appropriate Sub-Team. Each Sub-Team should consult other Sub-Teams that will be affected by the decision. If necessary, Sub-Team members will vote on specific strategies, with each student team member present having one vote. Mentors will guide the discussions and facilitate the vote, but will not have a vote themselves. Ties will be broken by the Team Captain.
- Ideally, the decisions should not require a vote; rather, discussions should result in optimal decisions.

## What Happens In Build Season

Here is a high-level view of what happens and what must be accomplished in the six weeks:

Week	Activities and Accomplishments
1	<ul style="list-style-type: none"> <li>• Participate in kickoff (watch video, review game rules)</li> <li>• Analyze game and determine strategy</li> <li>• Design: <b>finalize</b> mobility system, high-level for other mechanisms and control system</li> <li>• Build and Controls: start building mobility system (practice robot), start building mock-ups of field components, start prototyping other mechanisms</li> <li>• Programming: start planning and high-level design (autonomous and teleoperated modes)</li> </ul>
2	<ul style="list-style-type: none"> <li>• Design: <b>finalize</b> other mechanisms and control system</li> <li>• Build and Controls: <b>complete</b> mobility system (practice robot) and mock-ups of field components, continue prototyping other mechanisms, start part fabrication</li> <li>• Programming: <b>finalize</b> high-level design, start programming (autonomous and teleoperated modes)</li> </ul>
3	<ul style="list-style-type: none"> <li>• Build and Controls: <b>complete</b> part fabrication and other mechanisms, start assembly and wiring of practice robot</li> <li>• Programming: test and <b>complete</b> autonomous mode (mobility system only)</li> </ul>
4	<ul style="list-style-type: none"> <li>• Build and Controls: <b>complete</b> assembly and wiring (practice robot), start competition robot assembly and wiring</li> <li>• Programming and Drive: <b>complete</b> teleoperated mode</li> </ul>
5	<ul style="list-style-type: none"> <li>• Build and Controls: <b>complete</b> assembly and wiring (competition robot); test, troubleshoot, optimize as necessary</li> <li>• Programming and Drive: practice teleoperated mode, test autonomous mode, troubleshoot, optimize as necessary</li> </ul>
6	<ul style="list-style-type: none"> <li>• Build and Controls: test, troubleshoot, optimize as necessary</li> <li>• Programming and Drive: practice teleoperated mode, test autonomous mode, troubleshoot, optimize as necessary</li> <li>• Bag robot for shipping, and ship by end of week</li> </ul>
7 until end	<ul style="list-style-type: none"> <li>• Build and Controls: make/buy spare parts, ensure practice robot is same as competition robot</li> <li>• Programming and Drive: practice autonomous and teleoperated mode, troubleshoot, optimize as necessary</li> <li>• Scouting: prepare for competition</li> <li>• Pit Crew: prepare for competition, including creating checklists</li> </ul>

### Robot Completion and Shipping

On the last night of the build season, the robot must be “bagged and tagged”; it is put in a large bag and tagged, and must remain sealed. During the week before a District event, there is a few hours of “unbag” time during which the robot can be removed from the bag and the team can work on it. There are also a few hours at each competition during which minor changes and additions to the robot are allowed.

The robot must be taken to the competitions in the bag.

### Competition Season

The competition season includes participating in two District events in Ontario. If successful, we will compete in the *FIRST* Ontario Provincial Championships at the Hershey Centre in Mississauga, and if successful there then we will also compete at the *FIRST* World Championships.

### District Events

The team participates in two District events in Ontario each competition season; the exact dates and locations will be determined before the build season. All team members are encouraged to attend and participate in both events.

At each event, the team will participate in several matches with the robot, and will also compete for various other awards. Teams receive District Ranking Points based on their final Qualification Ranking, playoff performance and for any awards they receive; full rules are provided in each year’s game manual.

### *FIRST* Ontario Provincial Championships

Teams within Ontario are ranked by the number of District Ranking Points they accumulate during the regular competition season; the numbers may change each year, but typically the top 60 teams earn a spot at the *FIRST* Ontario Provincial Championships. At this event, teams again compete in matches and for awards; typically the top 30 teams go on to the *FIRST* World Championship (competing against other teams from around the world).

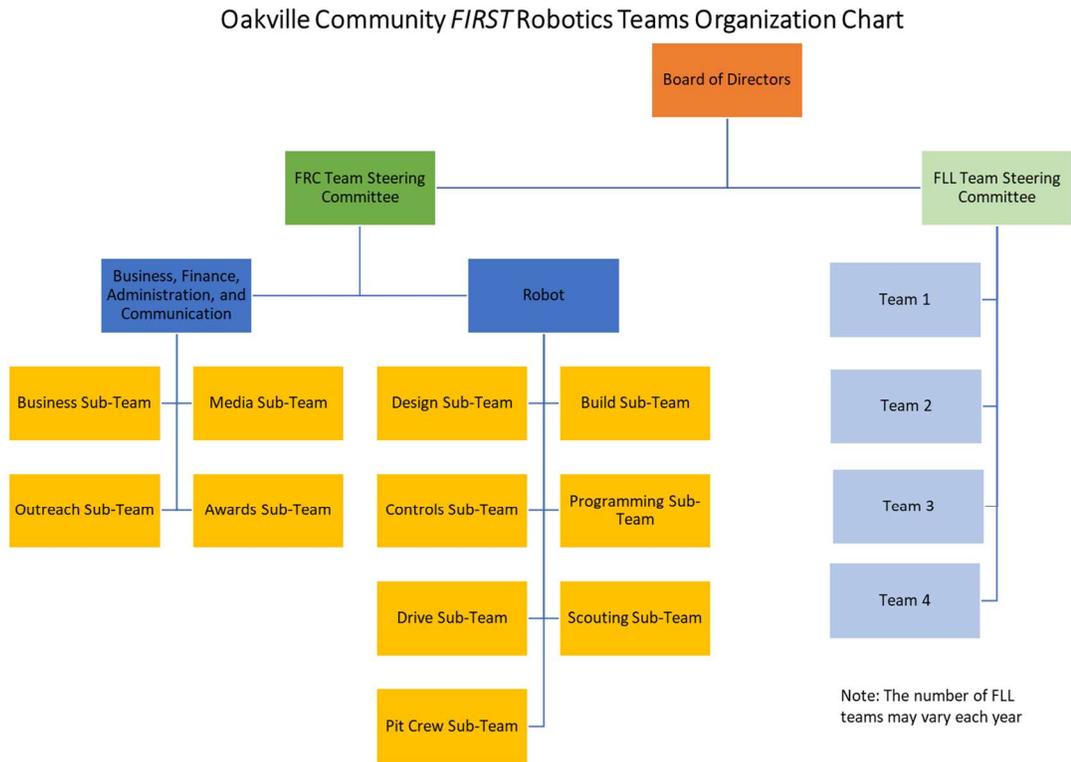
### *FIRST* World Championships

There are now so many FRC teams that the *FIRST* World Championships are held in two places, Detroit and Houston. Successful Ontario teams participate in the Detroit *FIRST* World Championships.

# Roles and Responsibilities

## Team Organization Chart

The following diagram is the Oakville Community *FIRST* Robotics Teams Organization Chart. The FRC roles are defined in later sections. Team members may fulfill multiple roles.



## Team Leadership

### Board of Directors

The Board of Directors meets as required and is composed of:

- President
- Secretary
- Treasurer
- Directors

## Team Steering Committee

The FRC Team Steering Committee meets as required and is composed of:

- The Board of Directors
- Active mentors (defined as a mentor who actively participates and attends over 65% of team events)
- The Team Captain
- The Captain's Advisor

## Mentors

Mentors are adult team members who help guide and teach student team members.

“Active mentors” are defined as a mentor who actively participates and attends over 65% of team events; active mentors are part of the Team Steering Committee. All other mentors are known as “alumni and friends” of the team.

Some active mentors will be assigned, by the Board of Directors, as Lead Mentors for sub-teams.

Team alumni are encouraged to continue their relationship with the team as Alumni Mentors.

## Team Captain

The Team Captain coordinates and monitors all activities of team members. The Team Captain is not expected to do everything; rather, the Team Captain is expected to use their best efforts to make sure everything gets done.

The Team Captain's responsibilities include:

- a) Lead and facilitate regular meetings with Sub-Team Leaders and Advisors;
- b) Participate in Team Steering Committee meetings and communicate the opinions and concerns of the members;
- c) Encourage the participation of members in team activities;
- d) Help create a welcoming and supportive environment for all team members, with particular emphasis on encouraging participation by new members;
- e) Facilitate creation of an overall plan and schedule of team activities, including all aspects of creating a competitive robot, competition, business, media, awards, and outreach;
- f) Track and monitor work to ensure that the plan and schedule are in place and are being followed;
- g) Ensure the robot change control process is being followed (as detailed later in this handbook);
- h) Ensure that tasks are shared and that the more skilled members share their knowledge with less skilled members;
- i) Ensure all members complete the *FIRST* Canada Bronze Safety Badge Quiz at: <http://www.proprofs.com/quiz-school/story.php?title=first-canada-bronze-safety-badge-quiz>;
- j) At competitions, communicate and coordinate with alliance partners; the Team Captain may delegate this responsibility to another team member;
- k) At competitions, represent the team during alliance selection; the Team Captain may delegate this responsibility to another team member;
- l) Work safely and follow all team policies and procedures.

### Captain's Advisor

The Team Captain becomes the Captain's Advisor the following year. The role of the Captain's Advisor is to assist and advise the Team Captain, as well as take on any tasks delegated by the Team Captain.

The Captain's Advisor responsibilities include:

- a) Assist the Team Captain in any of their responsibilities
- b) Participate in Team Steering Committee meetings;
- c) Help create a welcoming and supportive environment for all team members, with particular emphasis on encouraging participation by new members;
- d) Work safely and follow all team policies and procedures.

### Sub-Team Lead Mentors

One Lead Mentor will be assigned to each Sub-Team.

Sub-Team Leader Mentors are responsible for ensuring that the Sub-Team Leader and Advisor understand their roles and are doing all required tasks.

The responsibilities of Sub-Team Lead Mentors include:

- a) Advise and assist the Sub-Team Leader and Advisor;
- b) Guide and facilitate discussions and decisions relevant to the Sub-Team
- c) Communicate with other members of the Team Steering Committee.

### Sub-Team Leaders

Sub-Team Leaders are responsible for coordinating and monitoring the activities of their Sub-Team. The responsibilities of Sub-Team leaders include:

- d) Help develop teaching aids and use their best efforts to ensure that everyone on the Sub-Team has appropriate knowledge and skills and feels included in contributing to the Sub-Team's assigned tasks;
- e) Allocate tasks appropriate to the experience and skills levels of the members and mentor their efforts.
- f) Communicate with the Sub-Team Advisor and Lead Mentor, the Team Captain, other mentors, and other Sub-Teams.

### Sub-Team Advisors

Each Sub-Team leader may also have an advisor, typically a Grade 12 student who mentors them and helps train Sub-Team members.

A Sub-Team Leader typically becomes the Sub-Team Advisor the following year. The role of the Sub-Team Advisor is to assist and advise the Sub-Team Leader, as well as take on any tasks delegated by the Sub-Team Leader.

### Team Captain and Sub-Team Leads Selection Process

At the end of each competition season, the Team Steering Committee invites senior students to recommend candidates to be the Team Captain for the following year. The Team Steering Committee makes the final selection.

The Team Captain will typically be going into their Grade 11 year, and will then become the Captain's Advisor in their Grade 12 year.

The Team Captain role may be split between two team members.

Criteria for Team Captain selection include:

- Ability to lead by example and function as a role model to team members (including demonstrating *Gracious Professionalism*® and *Coopertition*®, promoting STEM, having a positive relationship with mentors);
- Having a positive enthusiastic outlook and welcoming attitude towards new team members;
- Willingness to ensure all members feel included and are contributing to the team;
- Availability to promote *FIRST* and the team at major outreach and fund-raising presentations;
- Availability to attend majority of team meetings and activities (+70%);
- Having a minimum of one year actively participating on an FRC team;
- Possessing a reasonable knowledge of *FIRST*.

The Team Steering Committee (including the new Team Captain) will invite senior students to recommend candidates to be the Sub-Team Leaders for the following year. The Team Steering Committee makes the final selection. The Sub-Team Leaders will typically be going into their Grade 11 year, and will then become the Sub-Team Advisors in their Grade 12 year.

### Business, Finance, Administration, and Communication Sub-Teams

There are four student-led sub-teams related to the business, finance, administration, and communication activities of the team.

#### Business Sub-Team

The Business Sub-Team develops and maintains relationships with sponsors, and solicits new sponsors. This Sub-Team will also lead efforts to maintain prudent fiscal controls of the team's financial resources.

Responsibilities of the Business Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Develop and agree on a Business Plan to complete the tasks within an agreed time frame; this will include a mission statement, team impact/outreach, organizational structure, team budget, 3-year plan, off-season projects, sponsorship etc.;
- c) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- d) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- e) Ensure sub-team members understand the roles within the sub-team, and the tools used;
- f) Manage the database of current sponsors, and coordinate with mentors to ensure frequent status reports are sent to maintain sponsor awareness of the team's accomplishments;
- g) Coordinate with mentors to identify prospective new team sponsors and develop fund-soliciting presentations;
- h) Establish control systems to monitor income and expenses and present regular status reports;

- i) Coordinate with the Awards Sub-Team to prepare submission for the Entrepreneurship Award;
- j) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- k) Coordinate with Media Sub-Team to develop Sponsorship Presentations;
- l) Coordinate with Media Sub-Team to maintain relevant recruitment brochures;
- m) Coordinate with Mentors to manage the team's travel to competitions;
- n) Conduct competitive reviews to identify best business practices of other teams;
- o) Maintain team attendance records and present status reports.

### Media Sub-Team

The Media Sub-Team is responsible for developing and promoting a positive brand identity for the Team and supporting the marketing and promotional initiatives of the team.

Responsibilities of the Media Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with all other Sub-Teams;
- c) Develop and agree on a Media Plan to complete the tasks within an agreed time frame;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure sub-team members understand how to create and maintain the team's media, and the tools used to do so;
- g) Ensure the team website and its contents are topical, timely and relevant;
- h) Maintain the team social media accounts, and monitor all postings to ensure compliance with team policies;
- i) Ensure that good visual records are created for all team activities
- j) Maintain the media library;
- k) Help create promotional media (photo and video) to support awards presentations, fund-raising initiatives and community promotional programs;
- l) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- m) Help develop the decorations and promotional material used in the Pit at competitions;
- n) Design the team year-book;
- o) Conduct competitive reviews to identify best media practices of other teams;
- p) Develop a positive relationship with the local press and communicate frequently to develop supportive publicity for our activities.

### Outreach Sub-Team

The Outreach Sub-Team coordinates all external activities to promote STEM in the community.

Responsibilities of the Outreach Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with all other Sub-Teams;
- c) Develop and agree on a strategy to determine which outreach opportunities the team should pursue; this strategy should include offering training and support to other *FIRST* teams;

- d) Develop and agree on an Outreach Plan to complete the tasks within an agreed time frame; this will include maintaining a calendar of planned Outreach activities to minimize scheduling conflicts with other team programs, and a schedule to ensure all event requirements are completed on a timely basis;
- e) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- f) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- g) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- h) Seek new outreach activities consistent with the agreed strategy;
- i) Develop and organize the activities and presentations appropriate to each outreach event;
- j) Establish a budget for outreach activities and manage expenditures within the budget;
- k) Conduct competitive reviews to identify best outreach practices of other teams;
- l) Encourage and monitor to ensure all team members actively participate in at least two significant outreach activities each year.

### Awards Sub-Team

The Awards Sub-Team coordinates the preparation of all Award submissions, and develops all material that is made available to the Judges at competitions.

Responsibilities of the Awards Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with all other Sub-Teams;
- c) Develop and agree on an Awards Plan to complete the tasks within an agreed time frame; this will include maintaining a calendar showing the cut-off dates for all Awards submissions and a schedule to ensure all submissions are completed on a timely basis;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure sub-team members understand the roles within the sub-team, and the tools used;
- g) Work with mentors to agree on a theme for the Chairman's Award submission, develop the support material (including essay, Judges Book and Chairman's video), and train and rehearse the presenters;
- h) Coordinate with all other Sub-Team to get their input to the Chairman's Award;
- i) Train and rehearse the Judges' greeter teams for competitions;
- j) Coordinate with Pit Crew Sub-Team to ensure that there are always Judges' greeters in the Pit at competition;
- k) Develop the documentation supporting efforts to win the Team Attribute and Technical Awards at competitions;
- l) Conduct competitive reviews to identify best award practices of other teams;
- m) Coordinate with the Media Sub-Team to design and develop the decorations and promotional material used in the Pit.

Note the Awards Sub-Team is not responsible for preparing the *FIRST* Dean's List nominations; this is done by the mentors and will be communicated to all team members.

## Robot Sub-Teams

There are seven student-led sub-teams related to the robot activities of the team.

### Design, Build, Controls, and Programming Sub-Teams

#### *Design Sub-Team*

The Design Sub-Team designs the robot to accomplish the various performance requirements that have been identified, to execute the agreed game strategy. The design is done in SOLIDWORKS.

The design includes electronics, function, mobility, and chassis.

Responsibilities of the Design Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with other Sub-Teams, especially Build, Programming, Controls, and Drive sub-teams;
- c) Develop and agree on a Design Plan to complete the design tasks within an agreed time frame;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure sub-team members know how to use SOLIDWORKS and understand the basic concepts in designing a robot to compete in an FRC competition;
- g) Archive design when complete, including any changes;
- h) Ensure the robot change control process is being followed (as detailed later in this handbook);
- i) Create information required for the Industrial Design Award, and coordinate with Awards Sub-Team
- j) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- k) Conduct competitive reviews to identify best design practices of other teams;
- l) Develop off-season projects to improve the team's skills and knowledge.

#### *Build Sub-Team*

The Build Sub-Team is responsible for ensuring the robot is constructed on time, within budget, and according to the Design specifications. This includes fabrication, assembly, and changes to parts. This team also builds the field components used on the practice competition field.

Responsibilities include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with other Sub-Teams, especially Design, Programming, Controls, and Drive sub-teams;
- c) Develop and agree on a Build Plan to complete the build tasks within an agreed time frame;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure that safety passports are completed and kept up to date;
- g) Ensure team members comprehend design drawings;
- h) Ensure team members know how to use machinery and power and hand tools competently and safely;
- i) Catalogue and organize fabricated component parts;
- j) Control and organize the parts inventory;

- k) Build mock-ups of field components;
- l) Ensure the robot change control process is being followed (as detailed later in this handbook). The Build Sub-Team Lead and Advisor are responsible for documenting the Build Changes at Competition Process and Checklist;
- m) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- n) Conduct competitive reviews to identify best build practices of other teams;
- o) Develop off-season projects to improve the team's skills and knowledge.

### *Controls Sub-Team*

The Controls Sub-Team's primary task is to coordinate the design, construction and installation of the electrical, pneumatic, and sensor systems on the robot. This includes wiring, power, communications, and controller (RoboIO), and troubleshooting and maintenance of these components.

Responsibilities of the Controls Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with other Sub-Teams, especially Design, Build, Programming, and Drive sub-teams;
- c) Develop and agree on a Controls Plan to complete the design tasks within an agreed time frame;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan;
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure members are trained in the principles of control systems relevant to the robot requirements;
- g) Coordinate with the Design Sub-Team to ensure that all control system requirements are incorporated into the robot design;
- h) Coordinate with the Build Sub-Team to ensure that controls for the electrical, pneumatic, and sensor systems are adequately protected and are accessible;
- i) Coordinate with the Programming Sub-Team to ensure that the control functions and code are optimized
- j) Coordinate with the Drive sub-team to ensure that all drivers understand the control functions;
- k) Ensure the robot change control process is being followed (as detailed later in this handbook);
- l) Conduct competitive reviews to identify best control practices of other teams;
- m) Create information required for Innovation in Control Award, and coordinate with the Programming and Awards sub-teams;
- n) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- o) Develop and implement checklist procedures to monitor the robot's control systems at competitions;
- p) Develop off-season projects to improve the team's skills and knowledge.

### *Programming Sub-Team*

The Programming Sub-Team designs, develops, and implements software to control the robot, for both autonomous mode (when the robot operates on its own) and teleoperated mode (when the robot is controlled by a driver).

Responsibilities of Programming Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Coordinate with other teams, especially Build, Design, Controls, and Drive sub-teams;

- c) Develop and agree on a Programming Plan to complete the programming tasks within an agreed time frame allowing adequate time for testing and remedial work;
- d) Work with the Team Captain to understand, follow, maintain, and monitor the plan
- e) Track and monitor work to ensure the plan and schedule are in place and are being followed;
- f) Ensure team members are competent in programming an FRC robot in Java, and understand the processes to develop effective robot code;
- g) Ensure team members understand how to effectively use the team's programming environment and tools;
- h) Archive programs when complete, including any changes, and manage and maintain control of the competition code;
- i) Document programming templates, standards, procedures to be followed;
- j) Ensure the robot change control process, including the programming change control process, is being followed (as detailed later in this handbook). The Programming Sub-Team Lead and Advisor are responsible for documenting the Programming Changes at Competition Process and Checklist;
- k) Create information required for Innovation in Control Award, and coordinate with the Controls and Awards Sub-Teams;
- l) Coordinate with the Awards Sub-Team to provide input to the Chairman's Award;
- m) Conduct competitive reviews to identify best programming practices of other teams;
- n) Develop off-season projects to improve the team's skills and knowledge.

### Competition Sub-Teams

A *FIRST* Robotics Competition combines the excitement of sports with the rigors of science and technology.

**Note:** Every team member attending a competition has an important role to play and responsibilities to uphold. Unless you have specific responsibilities at the competition with your Sub-Team, or you have been assigned a position on the Drive Sub-Team or Pit Crew Sub-Team, you are a member of the Scouting Sub-Team. Even if you have other responsibilities, you may be called on to participate in Scouting.

### Drive Sub-Team

At competitions, the Drive Sub-Team operates the robot. Their effort showcases the overall results of the team in designing, building and programming a competitive robot.

The drive sub-team may change each year, but typically consists of four to five people (as detailed in the following sections):

- Driver
- Operator
- Coach
- Human Player(s)
- Technician

At competitions, the Team Captain communicates and coordinates with alliance partners. The Team Captain may delegate this responsibility to another team member.

**Note:** Drive Sub-Team members are also members of one or more other Sub-Teams.

Responsibilities of Drive Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) During build, coordinate with other Sub-Teams, especially Build, Design, Controls and Programming Sub-Teams;
- c) Develop and agree on a Drive Sub-Team Plan to complete training within an agreed time frame;
- d) Work with Team Captain to understand, follow, maintain, and monitor the plan, and the robot change control process (as detailed later in this document);
- e) During competitions, the Driver and Operator drive and operate the robot, the Coach advises the Drive Team, Human Players participate in the game as required, and the Technician helps with troubleshooting and setup;
- f) During competitions, work with alliance members for each match;
- g) During competitions, work with Scouting Sub-Team to learn information about alliance and competitor teams;
- h) During competitions, work with Pit Crew Sub-Team to ensure robot is operating optimally.

The Drive Sub-Team will be selected, by tryout, during the build season, and must practice, ideally starting during build season, to be successful.

Being a member of the Drive Sub-Team is a big responsibility and is a privilege earned by team members who have made a strong contribution to the team and proven their skills.

To be considered for the Drive Sub-Team you must:

- a) Have an excellent knowledge of all of the rules of the game, including how to score points and how to avoid penalties;
- b) Be available to attend driver practice training sessions that will be scheduled on a regular basis as soon as a drivable robot is available
- c) Be available to attend the two District events in Ontario;
- d) Be available to attend the *FIRST* Ontario Provincial Championships and *FIRST* World Championships, if the team becomes eligible;
- e) For the Driver positions, be able to demonstrate an acceptable control of the robot, after training.

The selection of the Drive Sub-Team members will also include consideration of each applicant's overall commitment and contribution to the team. Typically, two alternate Drive Sub-Team members will also train with the Drive Sub-Team to provide backup if required.

The drive team members are key representatives of the team at competition; the *FIRST* values of *Gracious Professionalism*<sup>®</sup> and *Coopertition*<sup>®</sup> and the team's Behaviour and Code of Conduct must be followed at all times.

#### Driver

The Driver drives the robot, moving it about the field.

#### Operator

The Operator operates the other mechanisms on the robot, such as shooter, thrower, etc.

### Coach

The Coach directs what the other members of the Drive Sub-Team do during matches.

### Human Player(s)

Typically, the Human Player is placed near the field and may interact with game pieces as well as provide information to the other members of the Drive Sub-Team from their perspective (using signals). Depending on the specific game, there may be more than one Human Player, and they may play a significant role in the game.

### Technician

The Technician helps with any troubleshooting required, and helps put the robot on the field and remove the robot from the field after the match.

### Team Captain – Alliance Coordination

At competitions, the Team Captain communicates and coordinates with alliance partners; the Team Captain may delegate this responsibility to another team member.

### Scouting Sub-Team

The Scouting Sub-Team is a key function for the team during competitions.

**Note:** It is important to note that any Team member who is at a competition and who is not currently doing another job is automatically on the Scouting Sub-Team and is expected to be scouting.

The Scouting Sub-Team consists of a Scout Lead, Scout Coordinator, and Scouts.

A paper Scouting form or an app developed by the team may be used; this will be determined during the build season. Scouting information must be input into a database, either electronically or by the Scout Lead. The Scout Coordinator assigns tasks to the Scouts and ensures that all information is passed to the Scout Lead. The Scout Lead analyzes all the information and provides input to the Drive Sub-Team and for Alliance Selection (as described below).

Responsibilities of Scouting Sub-Team include:

- a) Work safely and follow all team policies and procedures;
- b) Work with Team Captain to understand, follow, maintain, and monitor the plan;
- c) Ensure all team members understand the Scouting process, how to use it, and what is expected of them;
- d) Ensure that enough paper Scouting forms are available, as a backup to the Scouting app (if available).
- e) During competitions, gather information about other teams, consolidate the information, and provide it to the Drive Sub-Team in a timely manner.
- f) During competitions, foster positive working relationships with other teams
- g) Before alliance selection, provide information and analysis to the team members involved in alliance selection, in a timely manner.

### Scouting Process

All Scouts will be assigned a specific list of pits or list of teams or matches to scout. The Scouts must compile the required Scouting information, and ensure that it is sent promptly to the Scout Coordinator.

### Pit Scouting

The intention of pit scouting is to learn about other teams. Pit scouting involves visiting other teams' pits, talking to other teams, understanding their robot and strategy, and taking pictures of the robots.

### Match and Team Scouting

The intention of match and team scouting is to observe how other team's robots perform in matches, so that when we are in an alliance with them we can be a more effective alliance partner, and when we are competing against them we can be a more effective competitor. Match scouting involves watching assigned matches, and observing and documenting how the robots work and what the team strategies are.

### Alliance Selection Process

The Alliance Selection process is detailed in the game manual each year, and involves the top eight teams at a competition picking other teams as their alliance partners for the playoff matches.

Prior to alliance selection, the Scouting Sub-Team provides an analysis of all scouting information. Team members meet and use this analysis to create a ranked list of teams to select. If there is disagreement, the Team Captain has the final decision authority.

One team member represents the team during alliance selection. By default, this is the Team Captain; the Team Captain may delegate this responsibility to another team member.

It is very important that everyone on the team supports the alliance decision, and works with the alliance partners.

### Pit Crew Sub-Team

Each team at a competition is assigned a pit. This is where the robot lives between matches and where any repairs take place. It is also where the Judges visit to learn about the team and discuss awards.

The Pit Crew Sub-Team is responsible for everything that happens in the pit during competitions, including repairing the robot, charging and replacing the batteries, assembling and maintaining the pit, and ensuring appropriate checklists are created and completed.

Responsibilities of Pit Crew Sub-Team team lead and members include:

- a) Work safely and follow all team policies and procedures;
- b) Work with Team Captain to understand, follow, maintain, and monitor the plan;
- c) Setup the pit and equipment;
- d) Repair the robot as required;
- e) Work with the Drive Sub-Team to ensure robot is operating optimally;
- f) Assemble, maintain, and tear down pit area;
- g) The Battery and Air Tank Manager replaces and charges batteries and charges the air tanks (if the robot has any);
- h) The Safety Manager ensures that all competition safety rules and practices are being followed;
- i) The Checklist Manager creates and maintains all checklists, and ensures all checklists are completed;
- j) Coordinate with Awards Sub-Team to ensure that there are always Judges' greeters in the Pit at competition;

k) During competitions, foster positive working relationships with other teams

#### Battery and Air Tank Manager

The Battery and Air Tank Manager is a member of the Pit Crew Sub-Team who is assigned to ensure that the robot always has charged, working batteries, and always has charged air tanks (if necessary).

#### Safety Manager

The Safety Manager is a member of the Pit Crew Sub-Team who is assigned to ensure that all competition safety rules and practices are being followed, especially by all team members who are at the Pit.

#### Checklist Manager

The Checklist Manager is a member of the Pit Crew Sub-Team who is assigned to ensure that appropriate checklists are created, maintained, and completed.

The Checklist Manager works with other members of the Pit Crew Sub-Team, and the Build, Controls, Programming, and Drive Sub-Teams, to identify and create checklists, including for the following:

- Before going to competition (what should be packed);
- Arrival at competition (ensure everything arrived, charge batteries,...);
- Before each match (charged batteries, robot on, latest code deployed...);
- After each match (batteries replaced and charging, ...);
- At end of each day (everything off and put away);
- At end of competition (everything off and packed).

## Team Member Responsibilities

### Application and Admission Process

Prospective team members must submit an application form, available on the team web site.

One of the members of the team Board of Directors will contact prospective team members to discuss the application.

Note: Applications submitted after September 15<sup>th</sup> each year will generally not be accepted, to ensure that all training can be completed before build season.

Team members must also register as a student in the *FIRST* Student Team Information Management System (STIMS) on <https://my.firstinspires.org/Dashboard//>

Team members and their parent or guardian must agree to follow the policies, procedures and practices of the Oakville Community *FIRST* Robotics team, as detailed in this Team Handbook.

### Obligations

Being a member of the team has many benefits, and some obligations.

### Outreach

Each team member is expected to participate in at least two outreach events per season. Attendance will be taken at each event.

## Attendance Requirements

All team members are expected to indicate their expected attendance at team meetings and events on Team Snap (as described in the “Team Internal Communication” section). Attendance will be taken at all team meetings and events.

Team members are expected to fully participate in the kickoff events at the beginning of build season. Team members are expected to participate as much as possible during build season, and to indicate their planned attendance on TeamSnap; this is very important for team planning.

The team recognizes that school is still the priority for students and homework and studying comes first. Build season is also when exams happen for some students; students are responsible for ensuring that robotics does not interfere with their exams.

Prior to build season team members will be asked what their expected attendance is for the duration of the season. This input is very important for planning, and knowing realistically how much can be accomplished.

Students are encouraged to attend all tournaments if possible. Again, indicating attendance on TeamSnap is very important for planning purposes.

## Mentor Responsibilities

### Application and Admission Process

There are forms and checks that are done prior to being accepted as a mentor for the team, including for Alumni Mentors.

The first step is to complete a mentor/coach application form, and mentor/coach screening disclosure form, and submit them to the Board of Directors.

The mentor selection process requires all applicants to complete these forms and then be interviewed by two members of the Board of Directors.

Successful applicants will be required to provide a Police Vulnerable Sector Check, which should be updated every 3 years. This can be done via Halton Regional Police Services; details and instructions are available at: <http://www.policerightsolutions.ca/checks/services/halton/index.php>

Mentors will also be invited, by the lead mentor, to be registered in the *FIRST* Team Information Management System (TIMS) as a mentor, at <https://www.firstinspires.org/>.

*FIRST* requires that main and alternate US and Canadian mentors also complete Youth Protection Program (YPP) screening every 3 years. The team recommends that all mentors complete this screening. Successful applicants will be sent an email inviting them to be a mentor contact for the team on <https://my.firstinspires.org/Dashboard/>; this invite also initiates the YPP screening process, which is done through [mybackcheck.com](http://mybackcheck.com).

### Obligations

All team mentors are expected to indicate their expected attendance at team meetings and events on Team Snap. Attendance will be taken at all team meetings and events.

## Parent or Guardian Responsibilities

Parents or guardians of team members also have some responsibilities to the team.

Team members and their parent or guardian must agree to follow the policies, procedures and practices of the Oakville Community *FIRST* Robotics team, as detailed in this Team Handbook.

### Information Required

Prospective team members must submit an application form, available on the team web site.

Successful applicants must have their parents or guardians complete a Student Participation consent, liability waiver & photography waiver form and a Team member health information form.

If a team member travels to a competition with the team, other forms will be required to be completed.

Team members must register as a student in the *FIRST* Student Team Information Management System (STIMS), and then parents must also register as a parent in the Team Information Management System (TIMS); all of this is done at <https://my.firstinspires.org/Dashboard//>.

### Payment information

#### Membership Fees

The annual operating costs of our *FIRST* Robotics Teams are \$50,000 to \$60,000. About 30% of these funds are generated from the membership fees, which is currently \$375 per team member.

Cheques should be made payable to the Oakville Community *FIRST* Robotics Team Inc. and submitted each September.

#### Membership Reimbursement Pilot Program

The remainder of the funds must be raised from donations and sponsorships.

The team currently has a pilot program to involve our team members and their parents or guardians more in communicating our mission to potential sponsors and helping obtain financial support for the team. To encourage this, the team is offering to reimburse the annual membership fee of \$375 to any team member who raises at least \$500 in new sponsorship or donations. To be eligible for this reimbursement the funds must be from a new contact that has not contributed to the team in the past and the initial approach to the donor must have come from the team member or their parent or guardian. After the initial contact, it may be necessary to involve team mentors to provide additional information to the prospective donor.

Cheques should be payable to the Oakville Community *FIRST* Robotics Team Inc.

#### Competition Costs

There will be additional costs associated with traveling to and from tournaments, associated hotels, and so forth. Parents and guardians will be advised of these costs when available.

There may also be travel and therefore additional costs if the team qualifies for the *FIRST* Ontario Provincial Championships and the *FIRST* World Championships. Parents and guardians will be advised of these costs when available.

## How Parents or Guardians can help

Parents or Guardians of team members can help in the following ways:

- Ensure students understand and follow all team policies and procedures, including those related to safety;
- Ensure students attend meetings and competitions;
- Provide possible sponsor contacts to the Board of Directors;
- With other parents, provide team lunches on Saturdays during build season; more information will be provided before build season;
- Attend competitions to cheer on the team;
- Provide transportation to/from competitions if necessary.

## Team Policies and Procedures

### Safety

**Important Note:** Our current meeting place (2416 Wyecroft Road, Unit 2, Oakville, Ontario L6L 5W2) is an active machine shop owned by one of our sponsors, Woodoer Inc. As such the entire area beyond the front lobby is designated as a “machine shop” for the purposes of this Safety section. This means that everyone going beyond the front lobby MUST be wearing safety footwear and safety glasses and follow all other safety rules as defined in the following sections... there are no exceptions to this. Visitors, including visiting team members, must also abide by these rules.

### Safety is for Everyone

All team members, mentors, and parents or guardians are expected to adopt a “safety first” attitude regarding team activities.

All team members must complete the *FIRST* Canada Bronze Safety Badge Quiz at:

<http://www.proprofs.com/quiz-school/story.php?title=first-canada-bronze-safety-badge-quiz>

Any injuries must be immediately reported to a mentor so that appropriate action can be taken and the appropriate incident reporting form can be completed.

### Safety When Working With Power Tools and Machines

A safety passport is required before a student or mentor is authorized to work on the power tools and machines in the machine shop. The safety passport is obtained by attending and successfully completing training on the machines; the opportunity to do this will be available during the pre-season.

Everyone working in the area where the power tools and machines are must maintain a safe distance from other people.

A certified adult mentor must be present in machine shop at all times that students are present and working on power tools or machines. Power tools and machines may only be used in the presence of a certified adult mentor.

The machine shop must always be left clean and organized.

## Safety Glasses

The team will provide one pair of numbered safety glasses per team member. It is the team member's responsibility to look after these; replacements will be available for purchase.

Safety glasses are required at these times, by everyone, no exceptions:

- In the machine shop; this rule applies to the team's machine shop, and any other machine shops that team members visit;
- When working on any powered part of the robot;
- When driving or operating the robot;
- In the pit area and on the field at competitions;

## Safety Footwear

CSA approved footwear with a green triangle marking is required when in a machine shop, by everyone, no exceptions; this marking indicates sole puncture protection with a Grade 1 protective toecap. This rule applies to the team's machine shop, and any other machine shops that team members visit.

Closed toed shoes are required at all other times when participating in team activities.

## Other Safety Practices

No loose clothing is allowed in the machine shop. All hoodie ties, head scarves, and so forth MUST be worn such that nothing is dangling loose.

Long hair must be controlled such that it cannot get caught in any equipment.

## Behaviour and Code of Conduct

**Note:** An adult team member is defined as a team mentor or member of the team Board of Directors.

All student team members, adult team members, and parents or guardians are expected to always behave in a mature and professional manner.

Any person associated with the team whose behaviour is considered offensive or unacceptable may be referred to the Board of Directors. Following a review, the offending person may be asked to leave the team.

## Code of Conduct

All student team members, adult team members, and parents or guardians are expected to:

- a) Demonstrate honesty and integrity;
- b) Always treat each other with dignity and respect, and especially when there is disagreement;
- c) Respect and treat others fairly, regardless of but not limited to, their race, ancestry, place of origin, ethnicity, citizenship, religion, gender, gender identity, sexual orientation, age or ability;
- d) Respect the rights of others;
- e) Show proper care and regard for team property and the property of others;
- f) Seek assistance, if necessary, to resolve conflict constructively and respectfully;
- g) Respect the needs of others to work in an environment conducive to teaching and learning and working, and use their best efforts to help others learn the skills required for their Sub-Team;
- h) Not use abusive or inappropriate language, or swear at another person;
- i) Wear appropriate, inoffensive, non-provocative clothing.

- j) Not engage in bullying behaviour;
- k) Follow all safety rules and regulations;
- l) Report any conflicts or issues between students or adult team members immediately to a member of the Board of Directors.

Anyone in a leadership position, including members of the Team Steering Committee and the Sub-Team Leads, must always act and appear to act impartially. If there is any concern of a conflict of interest, then another impartial leader must be consulted.

#### At Team Facility

Along with adhering to the Code of Conduct, at the team facility team members are expected to:

- a) Sign in when you arrive at a team meeting.
- b) Do not leave the team facility without advising a mentor.
- c) Keep the facility clean and tidy. If you take something out, put it away. If something needs cleaning up, clean it.

#### At Competitions

Along with adhering to the Code of Conduct, team members attending competitions are expected to:

- a) Participate:
  - i. Benefit and learn from other teams. Learn how are they organized, how they raise funds, what their processes are for designing and building their robot, what are the good and poor features of their robot, do they have a good pit design, do they show strong team spirit, and so forth.
  - ii. Show enthusiasm and vocal support when we are competing!
  - iii. Don't sit idly in the stands playing games. There is always lots to see and to learn. Other team members will be working very hard; offer to help them. Don't forget your Scouting responsibilities!
  - iv. Don't crowd the pit. It is our work area, and a place for other teams to learn about us. It is not a social meeting place.
- b) Be a proud team representative:
  - i. Maintain eye contact when talking and shaking hands with judges.
  - ii. Have a basic understanding of the features of our robot, so that you are able to explain to anyone interested.
  - iii. Be able to explain how our team works and what makes us unique.
- c) Be safe. You are responsible for your own safety and helping maintain a safe working environment. Understand and follow the team's safety rules and take all appropriate action to eliminate safety hazards.
- d) Sign in and out with the organizing mentor. Do not leave the event venue without express consent of a mentor. It is very important that mentors know who is at the competition at all times.
- e) Dress code: Wear your team shirt, long pants (not torn jeans), and closed toe shoes that completely cover your feet. Wear your safety glasses in the pit area and on the field.

#### Traveling With the Team

**Note:** Only team members in Grades 9 and above will be invited to travel with the team.

When the team attends competitions that require travel and hotel accommodations, student team members will share a room with other team members of the same sex. Mentors will be in rooms close to the student rooms. Students will be provided with the room numbers of mentors and should contact a mentor if there are any issues. Mentors will conduct room checks.

Along with adhering to the Code of Conduct, team members traveling and staying at a hotel with the team are expected to adhere to the following rules:

- a) Be respectful of others on the bus.
- b) If traveling across the border into the U.S. remember that the border agent has the right to refuse you entry into the country; do not give them a reason to do so. Be polite and respectful, and do not joke or make any inappropriate remarks.
- c) Do not swap hotel room assignments without express permission of the organizing mentor.
- d) Do not leave the hotel without express consent of a mentor.
- e) No person of the opposite sex is allowed in your room at any time.
- f) Do not use the swimming pool at any time.
- g) Be respectful to other hotel guests; there must be no loud noise or horseplay in corridors or public areas.
- h) Be respectful of your room mates. Keep your personal possessions organized, keep your room tidy.
- i) After curfew do not leave your room without express consent of a mentor.
- j) Do not have any video, photo, or visual communication between hotel rooms. If you need to communicate with other team members use the house phones, text, Slack or email.
- k) You will be personally responsible for any costs that you charge to your rooms (movies, room service etc.).

#### Adult Team Member and Student Team Member Interaction and Relationships

In accordance with the *FIRST* Youth Protection Program guidelines:

- a) Two or more adult team members must be present at all times when student team members are present, unless explicit written permission is obtained from parents or guardians of the students involved.
- b) Adult team members must not engage in personal exchanges with student team members, or engage in activities with student team members, that are outside the context of team activities, educational matters, or career concerns.
- c) Adult team members must not spend personal time with a student team member outside of team program activities, unless the adult is a family member or family friend.

#### Student Team Member Relationships

Student team members must not show inappropriate public displays of affection while participating in any team activities (including but not limited to meetings, outreach events, competitions, travel, and hotel stays).

Any student in a leadership position must always act and appear to act impartially. If there is any concern of a conflict of interest, then another impartial leader must be consulted.

## Team Internal Communication

**Note:** The Team Steering Committee may change the tools used for team internal communication; changes will be communicated to all team members.

All team members and active mentors will be invited to set up an account on TeamSnap and Slack. It is extremely important for team members to set up and monitor these accounts. All team members must have an email account that they check regularly.

Mentors who are “alumni and friends” of the team may be granted limited access to Slack; this access will be determined by the Board of Directors.

Remember the behaviour and code of conduct section when communicating with team members. Do not post inappropriate material or breach the code of conduct in any way.

### TeamSnap

TeamSnap contains the team schedule, and team members indicate their availability for meetings and events on TeamSnap. All team members are expected to indicate their expected attendance at team meetings and events on Team Snap.

Messages can also be sent to other team members, via email, from TeamSnap. All decisions related to the team will be communicated via TeamSnap.

### Email

Since TeamSnap communication is done via email, all team members must provide an email account that they check regularly.

### Slack

Slack is an instant messaging app. The team uses Slack for communication between members of the whole team and each Sub-Team. Along with announcements and some general interest Slack channels, each Sub-Team has a Slack channel. Team members are free to join as many Slack channels as they wish.

Slack is used for discussions. Because a channel can contain hundreds (or more!) messages, any decisions made must be communicated via TeamSnap.

## Team References for College and University Applications

Team members may want to enhance their college or university application by describing the skills they have gained and the contributions they have made to our *FIRST* Robotics team. In doing so, a student will be asked to provide a reference name to verify the information submitted. Almost all universities now have an online system for checking references; typically, the only options available to the reference contact are to reply “Yes - I confirm the information is accurate” or “No – I cannot confirm the information is accurate”.

If a team member submits information to a college or university about their participation on our team that is inaccurate, we will not confirm the information; this response would probably have a negative impact on the team member’s application. Therefore, it is advisable that team members seek the help of a mentor before completing application forms, especially if they are uncertain how to most effectively describe their involvement with the team.

It is important to note that merely being a member of the team is not sufficient to gain the endorsement of the team for college or university applications. Team members who only attend meetings sporadically, and/or make no effort to participate on one of the sub-teams or assist with our outreach activities, will not be endorsed.

To gain the team's endorsement for college or university applications, team members need to demonstrate a reasonable level of participation with the team. This is shown by a good attendance record, actively working on one or more of the sub-teams and helping less experienced team members, assisting with outreach projects, and attending and participating in at least one competition.

### Decision Authority

The overall authority for decisions related to the team resides with the Board of Directors.

### Robot Change Control

#### *During Build Season*

Once build season starts, a change to one aspect of the robot can affect many other aspects. For example, if the design sub-team were to redesign the robot drive mechanism, this would change what the build sub-team needed to build and the programming that the programmers would have to do. Therefore, any proposed changes to the robot design, build, control, or programming must be approved by the Sub-Team leads for all of these Sub-Teams as well as the Team Captain, in consultation with the Lead Mentors. Disagreements must be brought to the attention of the Board of Directors for resolution.

#### *At Competitions*

At competitions it may be tempting to change something on the robot, including the code, to make it perform better. However, there is a high probability that doing so would have unforeseen consequences. Therefore, a strict Robot control process will be put in place for competitions, for both build and programming. As a minimum this will require review by a person in a leadership role who is not making the change and will require approval by the appropriate Sub-Team Leaders or Advisors, and Lead Mentors, including Drive Sub-Team, Build Sub-Team, and Programming Sub-Team.

The Programming Sub-Team Lead and Advisor are responsible for documenting the Programming Changes at Competition Process and Checklist.

The Build Sub-Team Lead and Advisor are responsible for documenting the Build Changes at Competition Process and Checklist.

### Archiving

All artifacts created during a season, including design, build, controls, programming, awards, photos, videos, and so forth must be archived. The Board of Directors will establish a policy and procedure for archiving all team records.

### Social Media and Providing Written Information on Behalf of the Team

Remember the behaviour and code of conduct section when using social media or providing any written information on behalf of the team. Do not post inappropriate material or breach the code of conduct in any way.

Any written information on behalf of the team must be approved by a member of the Board of Directors, before it is sent or posted.

Full names of student team members must not be published on any social media (including the team website).

Written Award submissions must be approved by at least two members of the Board of Directors.

Written information includes, but is not limited to:

- Website, social media content
- Emails to sponsors
- Award submissions
- Informational packages, team flyers and brochures
- Newsletters, blogs

The Media Sub-Team Lead Mentor has the authority to delete or edit team internal and external media content.

### Uniform

All team members and mentors will be provided with a team polo shirt at no additional cost. The shirt must be worn at all team events, including outreach events and competition. The shirt does not have to be worn to regular team meetings, except for special occasions which will be announced.

Team members and mentors may order a team hoodie or sweatshirt, at additional cost. The opportunity to do this will be available at least once per year, and details will be announced. Other items may be designed and sold from time to time.

### Competition Travel

**Note:** Only team members in Grades 9 and above will be invited to travel with the team.

For competitions that involve travel, team members will need to complete appropriate forms and have appropriate documentation. Forms will include permission to travel by coach, hotel stay, and attendance at competitions in US and Canada.

### Expenses

Pre-approval is required, by two members of the Board of Directors, before any expense more than \$50.00 is incurred on behalf of team.

An Expense Reimbursement Claim form must be submitted, with receipts, to the team Treasurer for reimbursement. All Expense Reimbursement Claims must be approved by a Director, and if the total claim is greater than \$100.00, the approval of two Directors is required.

### Volunteer Hours

All students volunteering at team outreach events will be provided with a form, signed by a supervising mentor, indicating the details of the volunteering including the number of hours.

Supervising mentors for an outreach event are responsible for taking attendance at the event, completing and distributing the signed volunteer forms, and updating the volunteer tracking spreadsheet.

## Attendance

All team members are expected to indicate their expected attendance at team meetings and events on Team Snap. Attendance will be taken at all team meetings and events and record will be kept in a private location on TeamSnap.

## Documentation

This handbook and all associated team policies, procedures, and forms are stored in TeamSnap.

## Useful Links

Here are some links that may be useful:

- Orbit Robotics Team website: <http://1360.ca/>
- Orbit Robotics tutorials and resources: <http://1360.ca/tutorials/>
- Official *FIRST* Canada: <http://www.firstroboticscanada.org/main/>
- *FIRST* US: <http://www.firstinspires.org/>
- Teams and events: <https://www.thebluealliance.com/>
- Forum: <https://www.chiefdelphi.com/forums/index.php>
- Resources: <http://www.simbotics.org/resources>

## Authority of Handbook

The rules and polices set forth in this handbook are binding and must be followed by all team members. The Board of Directors has the authority to modify the handbook at any time; team members will be notified of any modifications.