

MAKESHIFT
4039

St. Mary Secondary School
FIRST Robotics Team



TEAM HANDBOOK

2020-2021 Season

10th Anniversary Edition!

Contents

1. WELCOME	3
2. MAKESHIFT ROBOTICS AT ST. MARY'S	4
3. ABOUT <i>FIRST</i> AND FRC	5
4. PREVIOUS SEASONS	5
5. GOALS	7
6. ROLES.....	7
6.1 STUDENT TEAM MEMBERS	7
6.2 ADULT TEAM MEMBERS	9
6.3 STEERING COMMITTEE	10
7. CANS, TEAM STRUCTURE AND STUDENT LEADERSHIP	10
7.1 CANS	10
7.2 TEAM STRUCTURE.....	11
7.4 STUDENT LEADERSHIP	15
8. STUDENT'S TIME COMMITMENT	16
8.1 PRE-SEASON:	16
8.2 BUILD/COMPETITION SEASON:	16
8.3 POST-SEASON:	17
8.4 SHIFTWORK POINT SYSTEM:	17
9. COMMUNICATIONS	18
10. COMPETITIONS.....	18
10.1 DISTRICT EVENTS.....	18
10.2 CHAMPIONSHIPS	18
10.3 OFF-SEASON EVENTS	18
10.4 COMPETITION PROTOCOL = GRACIOUS PROFESSIONALISM	19
11. COSTS TO STUDENT TEAM MEMBERS	19
12. POST-SECONDARY AND CAREER OPPORTUNITIES.....	20

1. Welcome!

Congratulations on deciding to join St Mary's *FIRST* Robotics Team! This handbook is intended to give you an understanding of the program and your responsibilities as a team member. In the following pages you will find information related to our team's history, goals, roles, expectations, competition events, and many other aspects of our team.

Please review all the information carefully and share it with your parents or guardians. Keep it handy for future reference. If you have any questions that are not covered in this document do not hesitate to ask a mentor. We look forward to working with you to *make the shift*.



2. MakeShift Robotics at St. Mary's

Our "Why"

- we believe we can change the world
- we believe everything we do builds the next generation of problem solvers
- we believe our initiatives positively influence the world through making STEM exciting, inclusive and accessible
- we believe this positive impact can only be realized when we collaboratively challenge the status quo

Our "How"

- we do this through introducing students to a team environment where they work alongside adult professionals to experience a science/technology career
- we do this by engaging in student driven activities outside the competition that shift the perception of science and technology and inspire others
- we do this by engaging in STEM projects that improve people's lives and by developing student STEM leaders

Our "What"

and by the way, we also build really cool competitive robots...

3. About *FIRST* and FRC

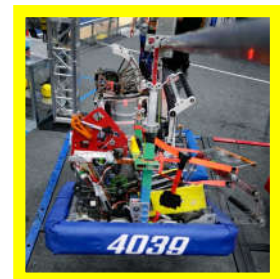
FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989 by inventor Dean Kamen to inspire young people's interest and participation in science and technology. Based in Manchester New Hampshire, this not-for-profit public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills. FRC (*FIRST* Robotics Competition) is the high school division of *FIRST*.

“Our mission is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.” from www.usfirst.org/aboutus/vision

4. Previous Seasons

2019 - 2020 Season:

- 30 students and 7 mentors
- high goal inner port shooter and buddy-climbing robot “*Bloom*”
- Chairman’s Award & semi-finalists – Durham District
- Regional Chairman's Award & quarterfinalist – Ontario Provincial District Championships



2018 - 2019 Season:

- 35 students and 7 mentors
- hatch and cargo handling, level 3 HAB climbing robot “*Nova/Sprout*”
- Chairman’s Award & finalists – Humber District
- Gracious Professionalism Award & semifinalists – Windsor District
- Gracious Professionalism Award & quarterfinalist – Ontario Provincial District Championships
- Judge’s Award and semifinalist - *FIRST* World Championships, Daly Division



2017 - 2018 Season:

- 32 students and 7 mentors
- switch-dominating, scale-stretching robot “*Spark*”
- Quality Award & finalists – Georgian District
- Chairman's Award, Safety Award & finalists – Ryerson District
- Entrepreneurship Award & quarterfinalist– McMaster District
- Regional Chairman's Award & quarterfinalist – Ontario Provincial District Championships
- quarterfinalist - *FIRST* World Championships, Tesla Division



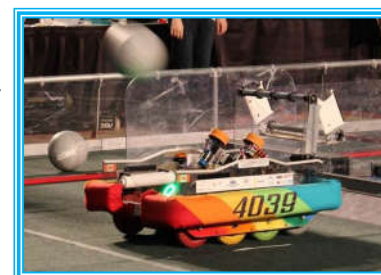
2016 - 2017 Season:

- 24 students and 6 mentors
- gear-plunking, fuel-spitting, rope climbing robot “Pepper”
- Chairman's Award & winner (undefeated)– Victoria Park District
- Quality Award, Safety Award & winner – Western University District
- Engineering Inspiration Award & winner – McMaster University District
- Regional Chairman's Award & semifinalist – Ontario Provincial District Championship
- quarterfinalist - *FIRST* World Championships, Curie Division
- invited to Indiana Robotics Invitational



2015 - 2016 Season:

- 32 students and 6 mentors
- boulder-tossing, defense-traversing robot “Skittles”
- Entrepreneurship Award, Safety Star, Safety Award & semifinalist - Waterloo Regional
- Imagery Award, Entrepreneurship Award & winner (undefeated) –
- Buckeye Regional
- Imagery Award & semifinalist - *FIRST* World Championships, Carver Division
- invited to Indiana Robotics Invitational
- winner - RaChaChaRuckus



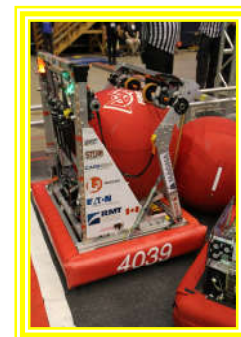
2014 - 2015 Season:

- 34 students and 5 mentors
- tote/recycling container/pool noodle stacking robot “ROY G BIV”
- Creativity Award, Dean's List Finalist & quarter-finalist – Waterloo Regional
- Chairman's Award & winner – Finger Lakes Regional
- finalist - *FIRST* World Championships, Carver Division
- quarterfinalist - Indiana Robotics Invitational
- semifinalist - RaChaChaRuckus



2013 - 2014 Season:

- 32 students and 4 mentors
- exercise ball passing and shooting robot “Chuck”
- Imagery Award, Woodie Flowers Finalist & semifinalist – Waterloo Regional
- Entrepreneurship Award & winner – New York City Regional
- semifinalist as captain of 7th seed alliance - *FIRST* World Championships – Newton
- winner – Indiana Robotics Invitational
- “Restless Spirits” Award & semifinalist - RaChaCha Ruckus



2012 - 2013 Season:

- 24 students and 3 mentors
- “Ultimate Ascent” frisbee-tossing-pyramid-climbing robot “Fling”
- Judge's Award & quarterfinalist – Waterloo Regional
- Judge's Award & quarterfinalist – GTR-W Regional
- semifinalist - *FIRST* World Championships, Galileo Division
- invited to Indiana Robotics Invitational
- “Crypt Keeper” Award & winner - RaChaCha Ruckus



2011 - 2012 Season:

- our rookie season
- 15 students and 2 mentors
- “Rebound Rumble” basketball-playing robot “Shifty”
- Rookie Engineering Inspiration Award & quarterfinalist - Waterloo Regional



More important than our achievements at competitions is the work that our team does in the community. We started the first *FIRST* Lego League (FLL) team, the first FRC team and the first FTC team in our Board. We have led the growth of *FIRST* in Hamilton with the HWCDSB now fielding six FRC teams, three FTC teams, more than two dozen *FIRST* LEGO League teams and over 30 FLL Junior teams at local elementary schools. We participate in community events to spread interest in science and technology and inspire the next generation of technology leaders. Our graduates have gone on to study engineering, architecture, biomedical sciences, astrophysics, and computing at university.

5. Goals

- 1. Promote math, science and technology in a fun, hands-on atmosphere**
- 2. In a team environment, allow students to work alongside adult professionals to experience the agony and thrills of a science/technology career in the pursuit of a competitive student-built robot.**

note: additional goals may be set by the team at the beginning of each season.

6. Roles

6.1 Student Team Members

We are an open team, accepting applications from anyone who wishes to take part in the MakeShift experience. Prior to the start of the season, each student must complete and sign an Application Form. In order to provide a valuable experience, the number of students accepted onto the team will be limited to five times the number of committed mentors. If more than this number applies, lead mentors and student team leads will schedule individual interviews with candidates. Their selection criteria will include demonstrated commitment in previous years, enthusiasm, and fit into the functional needs of the team at the time. As membership offers a wide variety of experiences and opportunities, each student is certain to find their niche in the team.

The following is our expectation of students:

- 1. The more you put into the team, the more you'll get out of it.** School comes first. Every student team member is expected to maintain their grades and class work during the entire time they are on the team. At the same time, inconsistent attendance at team meetings leads to missed training and inefficiencies for both mentors and fellow students. Student team members must meet minimum attendance/participation thresholds to be eligible to attend competitions with the team. See section 8.4 of this handbook for details on team meeting times and attendance/participation requirements.
- 2. Safety orientation is mandatory.** During pre-season the team's Safety General provides training sessions covering safety awareness and safe practices. This includes information on FIRST's Youth Protection Program. Team members cannot participate in shop or pit activities without having completed this orientation.

see the addendum to this Handbook for important information on our meeting procedures during Covid-19

- 3. An interest in science, technology, robotics and related fields is helpful but not mandatory:** here's a little secret... it's not about the robot. If students do not start out their *MakeShift* career with a passion for a particular field, that's okay. We hope that students develop an expertise on one area as time goes on. Besides the day to day building of robots, there are a multitude of opportunities to do tasks that focus on marketing, photography, videography, awards presentation, community outreach, website design and many other areas in support of the team. Regardless of where a student finds their niche, the problem-solving methods and teamwork skills they develop as part of *MakeShift* will serve them well in any career they pursue.
- 4. Appropriate behavior:** *MakeShift* is a unique mixture of students and adults with different skills, backgrounds, and personalities. We rely on each other as individuals for the success of the team as a whole. Every student team member is expected to bring their best and behave as motivated young adults with integrity and with the greatest regard for others.
 - a. Good judgment and positive behavior:** each student team member is an ambassador of our team both within our school and out in our community. Mature behavior choices rely on honesty, integrity, compassion and respect.
 - b. Commitment:** starting a project and following it through to the end is critical to personal and team success. Your word is very important: students should not take on a responsibility they cannot perform and should ask for help if they are having problems.
 - c. Ability to work both independently and as part of the team:** being able to be a team player (doing what is needed for the team) is an asset to us all. However, working independently when necessary shows dedication and a willingness to learn.
 - d. Respect for the work areas:** student team members are expected to keep the team portable (and the team's pit at competitions) clean and organized. This is critical for safety and shows respect for the fact that this space has been set aside by the school for our use. Our workspace should be clean at the end of every session.
 - e. Enjoy!** Students should keep in mind that the main reason that mentors, parents and students give freely of their time because *MakeShift* is fun!

note: failure to meet the above expectations will result in:

1. first offence: warning
2. second offence: warning and loss of privilege to attend District Competition
3. third offence: dismissal from team

6.2 Adult Team Members

The success of the MakeShift experience for the student team members depends in large part upon the dedication of the adult team members. Thank you for the gift of your time.

6.2.1 Parents

Parents are an integral part of our team and a key factor in the motivation and dedication of their child. Supporting their son or daughter in all aspects of their team involvement is key to the students getting the most out of their MakeShift experience. Parents are expected to:

- attend all parent meetings
- contribute their knowledge, advice and their time working alongside students on team activities as frequently as possible
- provide timely transportation for the student to meetings and competitions. Parents are expected to have the student at the designated location at the prescribed time.
- visit our pre-bag-and-tag Open House
- provide, on a turn basis, a hot meal for working dinners during extended build sessions
- advise the team Lead Mentor of any student medical condition which may affect their participation on the team
- provide accurate emergency contact information

“MPG”

Every parent having a child on the team is automatically a member of the MakeShift Parent's Group or “MPG”. Among other things the MPG organizes social outings for the team during pre-season, ensures the team gets fed during build season, coordinates meals/transportation/ accommodation for our events, and meets socially throughout the year. Parents not actively mentoring the team are strongly encouraged to get involved with MPG.

6.2.2 Mentors

Mentors of all shapes and sizes are encouraged to assist our team as dedicated adults working hard alongside team members to make the season a success. Mentors provide knowledge, experience, and insight into all aspects of our business, not just the design and construction of our robot.

6.2.3 macMentors

Our macMentors (undergrad engineering students from McMaster University) bring valuable experience and enthusiasm for *FIRST* to the MakeShift team. They are our mentors in training.

6.2.4 Lead Mentors

The team's Lead Mentors (currently Mr. Ciprietti and Mr. Alderson) are the primary point of contact between the team and the school. Lead Mentors, working with the Student Team Leads, have ultimate authority and responsibility for all aspects of the team and its members. The Lead Mentor's specific tasks include team organization, overall planning and team management.

Important note: all mentors and parent volunteers are required to comply with FIRST's Youth Protection Program prior to working with the team on a regular basis. See a Lead Mentor or refer to www.usfirst.org/aboutus/youth-protection-program for details.

6.3 Steering Committee

The MakeShift Steering Committee meets annually to chart the direction of the team for the upcoming season. The Steering Committee is comprised of volunteers representing students, parents, mentors and other stakeholders.

7. CANS, Team Structure and Student Leadership

7.1 CANS

At the start of pre-season students are assigned to a colour-coded CAN (Create Awesome Now) of four to six students. CANS are meant to be a mixture of grades, experience levels and areas of interest. Each CAN includes a student lead who will work with members of their CAN to record attendance, schedule training, record *ShiftWork* and coordinate the schedule for each member on a meeting-by-meeting basis.

"CANS"

CANS are intended to:

- support the welcoming of new team members onto the team
- encourage the social aspect of the team for all student team members
- facilitate new friendships
- provide leadership opportunities for returning team members

From time to time friendly competitions between CANS may be scheduled...

7.2 Team Structure

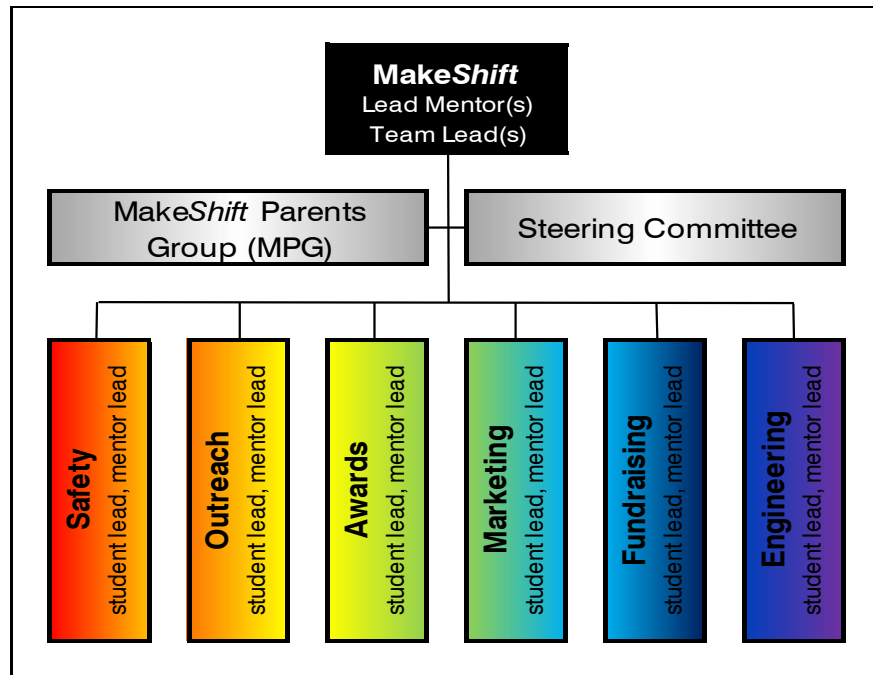


Figure 7.2: Overall Team Structure

Every student team member participates in the Safety, Outreach, Awards, Marketing, and Fundraising sub-teams. Each sub-team is led by one student and one mentor. The Sub-Team Leads are not responsible to complete the day-to-day work of the sub-team but rather to act as a focal point and organizer for the contributions of the entire team membership.

Safety:

- day to day safety is the responsibility of every team member
- during pre-season and build season in our workshop the Safety General:
 - develops and helps deliver appropriate safety training modules
 - maintains our Safety Manual and MSDS sheets
 - records any injuries or near misses
 - completes monthly safety reviews
 - ensures all team members have submitted consent and release form and are compliant with YPP
- during at events the Safety General:
 - communicates the Safety Plan to all team members
 - completes regular safety inspections in our pits
 - is available to speak with the event Safety Inspectors

Outreach:

- FLL:
 - liaison with feeder school teams
 - coordinates FLL Saturdays and FLL Qualifier
- FRC – coordinates mentoring of rookie teams
- charitable work:

- identifies opportunities to lead or help
 - coordinates staffing and transportation (in coordination with MPG)
- McMaster University – acts as liaison for shared activities
- Instants of Inspiration (lol):
 - identifies opportunities
 - coordinates staffing and transportation (in coordination with MPG)
- school and Board:
 - prepares morning announcements
 - contributes to newsletter
 - schedules staffing for open house, grade 9 BBQ
 - coordinates MakeShift support for the DREAMS team

Awards:

- research all possible awards (technical, imagery, media, animation, etc)
- manage all award submission deadlines
- responsible for Chairman's award submission:
 - essay
 - video (in coordination with Media team)
 - live presentation
 - scheduling of presenters in pits during events
- "Woodie Flowers" Finalist Award – selects nominee, writes nomination essay and submits
- Animation Award submission (in coordination with Media team)
- Technical Awards – help prepare materials and rehearse presenters (in coordination with Controls and Mechanical teams)
- Entrepreneurship Award – rehearse presenter (in coordination with Finance team)
- ensures team members are aware of scholarship opportunities, requirements and deadlines

Media/Marketing:

- posts to social media (Facebook, Twitter)
- contacts traditional media (press releases, contacting newspaper, radio, TV, school assemblies, school newsletter contribution)
- designs and maintains team website
- maintains team branding documents and ensures consistent usage on all platforms
- photographs and videotapes team progress throughout pre-season and competition season (in support of Awards and Website teams)
- tapes, edits and produces Chairman's video (working with Awards team)
- produces end of build season robot reveal video
- at competitions:
 - creates robot, engineering process, sponsor list and outreach posters for the pits
 - arranges any swag (give-aways)
 - videotapes every match from field level– reviews with drive team after the match and saves for later use in team videos
- produces end of season recap video

Finance and Fundraising:

- Finances:
 - working with Treasurer , record revenues and expenditures, maintain balance sheet, and issue receipts to sponsors (through the school office)
 - provide update to team as required on team's financial situation

- Business Plan:
 - update annually
 - review and update team's five-year plan
 - complete SWOT analysis
 - present to the rest of the team
- Sponsor Management:
 - during pre-season:
 - ensure regular team updates (newsletters) are sent to current sponsors
 - arrange visits to existing sponsor companies
 - refresh annually our marketing materials including one-pager, tri-fold and full sponsor package
 - identify and approach potential new sponsors
 - run 20/20/20 fundraiser
 - canvas local companies for in-kind donations (food for meetings, office supplies, etc)
 - during competition season:
 - ensure regular team updates (newsletters) are sent to current sponsors
 - organize competition tickets for sponsors
 - after the season:
 - invite sponsors to celebration dinner
 - ensure sponsors receive items as described on sponsorship levels document
- 20/20/20 fundraiser:
 - generate a map for each student, cross-check between students to ensure no overlap
 - train students on elevator speech and walk through a typical call
 - track contacts made and collect monies
- prepare and distribute end of season sponsor thanks

7.3 Team Configuration during Build Season

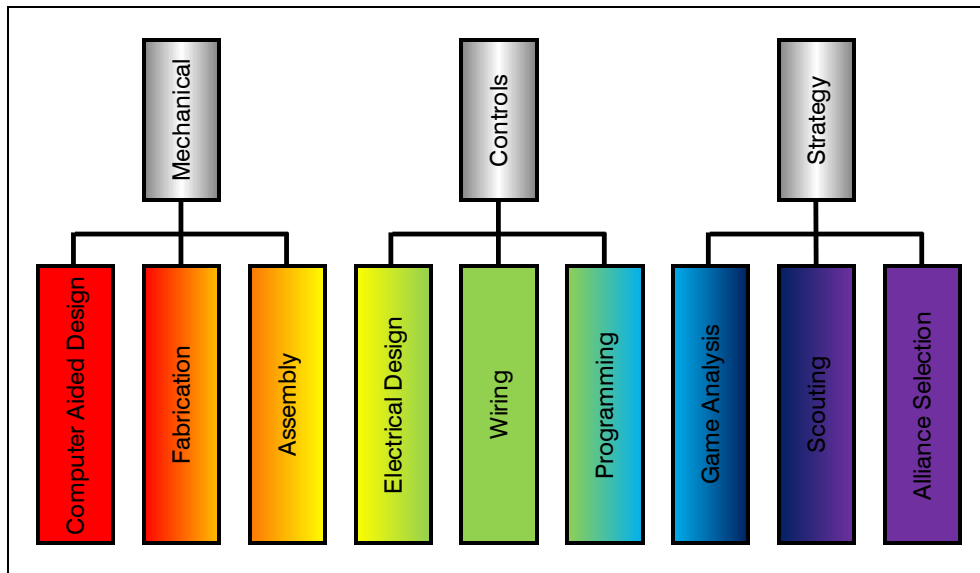


Figure 7.3: Build Season Team Configuration

During the intense build season MakeShift is organized into three main sub-teams: Mechanical, Controls, and Strategy. By dividing into specialized groups, students are able to focus on specific aspects of the project. Every student team member is expected to participate to the best of their ability in a least two areas that interest them.

Robot Mechanical:

Computer Aided Design

- design parts for robot using industry-standard CAD software
- specify mechanical parts for purchase

Fabrication

- use shop equipment including our CNC router to fabricate parts or source from sponsoring machine shop
- utilize team's 3D printer to make parts as required

Assembly

- mechanical assembly of robot
- assist with debug of mechanical systems

Robot Controls:

Electrical Design

- select electrical components like motors and sensors for purchase
- generate a wiring schematic to plan device locations on the robot

Wiring

- electrical wiring and troubleshooting of robot
- assist with debug of electrical systems

Programming

- use C++ programming to program the robot's tele-op and autonomous modes
- debugging of program

Robot Strategy:

- build season:
 - develops scouting format
 - train scouts
 - pre-scout competitors
- at the competitions:
 - manage match-by-match scouting in the stands
 - provide drive team with relevant data on our alliance partners and opponents prior to upcoming matches
 - tabulate scouting data into meaningful stats
 - lead pick list meeting
 - lead alliance selection process

Drive Team:

- build season and pre-competition:
 - evenings and weekends – tests the competition or practice robot at the Shared Practice Field
 - must be dedicated and willing to put in the time
- at the competitions:
 - bring robot to/from field for matches
 - control robot during match
 - act as the face of the team to other drive teams, the viewing audience, and volunteers

the Drive Team

MakeShift's drive team is selected by the team mentors based on demonstrated year-over-year commitment and dedication to the team and awareness of MakeShift's history and its goals.

Previous experience on our Chairman's team is a definite asset. These positions (typically technician, human player, operator and driver) require an outstanding passion for *FIRST* and our team, along with a strong ability to represent the team in a positive and professional manner, great communication skills, and demonstrated coolness under pressure.

7.4 Student Leadership

Students who take active and productive roles on the team will be rewarded with responsibilities such as sub-team or team leadership. Those who are unproductive or do not regularly attend team meetings and activities will not be entrusted with the same kinds of responsibilities. Nominations for leadership positions will be made in the pre-season. Student team members can nominate themselves or other students who have demonstrated a commitment to the team over an extended period of time.

The team's Lead Mentors will select team leads from the field of nominees with the decisions made no later than the end of October.

7.4.1 Team Leads

One or two students who are the team's overall Student Team Leads. These students are expected to:

- lead by example
- work with mentors to run most team meetings
- organize events
- coordinate communications between the individual sub-teams, adults, and the school administration
- represent the team at formal functions

7.4.2 Sub-Team Leads

Each functional sub-team (see section 7.2) will ideally have one student sub-team lead who manages the students in that sub-team. Student sub-team leads are expected to:

- recruit and train new members
- organize and hold relevant safety training sessions
- keep their sub-team members on track during build season (they do not necessarily do all the work, rather they make sure the work gets done)
- communicate the sub-team status and needs to the Team Leads and Mentors

8. Student's Time Commitment

As with any extra-curricular activity, a successful *FIRST* team requires dedication beyond the normal school day. Students may participate as much or as little as they are able: the more you put into it the more you'll get out of it. Some tasks lend themselves to part-time participation while others require a constant and committed dedication especially during the build season. However, certain mandatory tasks must be completed prior to kick off in January for the students to remain part of the team for build season. In addition, only students who have missed fewer than the specified number of team meetings (without advanced notice to a lead mentor) will be eligible to attend District competitions (see section 7.4 for details). Please see one of the mentors if you have any concerns about the time commitment.

8.1 Pre-season:

MakeShift meets on two weekdays from 3 to 6 pm from late September to mid-December. Team-building activities, fundraising, shop preparation, skill building and training will take place during this time. Students will also learn about the design process and project cycle used by MakeShift during build season. Veteran students or mentors may present lessons on computer aided design, electric motor performance curves and selection, the control system computer interface and programming language, or other aspects of robot design and construction. Strong pre-season preparation makes for less stress during the build season and competitions. **See the addendum for changes to meeting procedures during Covid-19.**

8.2 Build/competition season:

Build season is a critical period of time when the success of the team's season will be determined. From the time the game details are announced in early January to our "bag-and-tag" in mid-February, the team meets after school on each weekday and for several hours on Saturdays. These meetings run from 3 pm to 6 pm on Mondays, Wednesday, and Fridays. On Tuesdays and Thursdays the meetings start at 3 pm and go to 9 pm. Saturday meetings start at 9 am and may run as late as 5 pm. The exact schedule will be based on the availability of our mentors and access to the portable. Students must provide their own transportation to and from the school.

Some activities such as driver practice, awards, website, and strategy/scouting will continue from the time of bag-and-tag to competition weekend. If the team constructs a duplicate “practice” robot then the drive team will run tests and practice matches at our off-site practice field on weeknights and weekends.

District competition(s) in late March or early April include out-of-town activities on Friday and Saturday. In order to demonstrate their commitment to the team, MakeShift student team members intending to attend the District competition must accumulate the minimum number of required “ShiftWork” elements (see section 7.4 for details).

8.3 Post-season:

In the spirit of *FIRST*, team members are expected to participate in off-season activities that raise awareness for the *FIRST* program and inspire interest in science and technology. Events may include additional competitions, robot demonstrations at feeder schools, science fairs, community events, and visits to current or potential sponsors. Team members are encouraged to develop their skills during the off-season in order to prepare for the next year.

8.4 ShiftWork Point System:

Student team members earn *ShiftWork* points by participating in a variety of important team activities and training. Different activities are weighted with different number of points. The intent is ensure that students are putting in the effort to be safe and to learn from their MakeShift experience.

see the Appendix for this year’s *ShiftWork* activities and points

8.4.1 Attendance

Note that not attending team meetings results in the deduction of *ShiftWork* points: regular meeting attendance throughout pre-season is a requirement for students to remain part of the team. Students unable to attend the majority of meetings during build season (missing five or more mandatory meetings without contacting a mentor prior to the meeting) will not be eligible to attend District Competitions, Provincial Championships or World Championships.

8.4.1 Mandatory

Certain items, in addition to earning the student *ShiftWork* points, are mandatory for all team members. This year the mandatory elements are:

- registration on STIMS
- submission of team fee
- submission of shirt order form
- safety training and *FIRST* YPP training
- elevator speech
- volunteer at STEMley Cup Championship in November
- volunteer at our FLL tournament
- 20/20/20 fundraiser

9. Communications

E-mail will be the main form of communication throughout the season. Day to day communications with students will be conducted Slack. All students are expected to have an active E-mail address and must have access to Slack on their mobile devices.

Timing of meetings and events can be found on the team's Google calendar.

Team Posting Policy

MakeShift works tirelessly to building our reputation as a fun, polite, competent, hard-working team that embraces the principals of *FIRST*. As we grow, it is vital that we maintain this image. By becoming part of the team, members agree to abide by our posting policy:

All publicly available content (blog posts, ChiefDelphi posts, website news, tweets, photo albums, YouTube videos, Facebook updates, newsletters, posters, etc.) that refer to our team in any way, must be approved by a Lead Mentor prior to distribution. Content will be reviewed for correctness, brand adherence*, spelling/grammar and appropriateness. This approval can be done in person or via email.

*to maintain the integrity of the MakeShift brand, all team publications should follow the formats (logos, colours, font, etc) as available in the team's online "standards" folder

10. Competitions

Note that timing, duration, and attendance at competitions are subject to change due to Covid-10

10.1 District Events

MakeShift will attend two District competition(s) in March or early April. A typical District competition in Ontario takes place over two days (Friday/Saturday or Saturday/Sunday). Possible locations for District competitions this year include Hamilton, Waterloo, Toronto, Oshawa, Windsor, London, Barrie, North Bay and Ottawa. Teams earn points at their District competitions. The sixty teams accumulating the highest point totals in their two District events are invited to the Ontario District Championship at the Hershey Center in April.

10.2 Championships

A very limited number of teams from each District are invited to attend one of the World Championship Events. The Championships are similar to a Regional in many ways but on a much larger scale. Whereas a Regional might have 30 to 60 teams, the Championships will have up to 600 teams from around the world.

If MakeShift is fortunate enough to be invited to the Championship Event, we will meet as a team to determine if there is sufficient interest and resource to accept the invitation.

10.3 Off-Season Events

MakeShift may choose to participate in one or more off-season events. Some of these events will be highly competitive and some are more of a chance for training of newer team members and

improvement to our skills and processes. Examples include IRI (Indianapolis in July) and RaChaCha Ruckus (Rochester in October), and our own STEMley Cup Championship (St. Mary in November).

10.4 Competition Protocol = Gracious Professionalism

Things that members of MakeShift will do at an event:

- uphold the guiding principle of Gracious Professionalism[®]: we compete against the challenge - not the other teams. We show respect to officials, judges, and mentors, and other teams.
- cheer for our team, our alliance and any other deserving individual, team or alliance.
- respect the amount of work it takes to be successful at *FIRST*, we stand and applaud all the teams that win awards

Things that members of MakeShift will not do at an event:

- wear or use personal entertainment devices
- play cards or any other electronic games
- display displeasure over any decision by a referee or judge
- criticize or comment negatively on the work of other individuals or teams

11. Costs to Student Team Members

MakeShift receives very limited funding from the school/board. To offset costs (event registration, team shirts, robot kit, parts for the robot) students are asked to contribute individually. The team makes every effort to keep the cost of participation down. Student contributions represent less than 15% of the annual cost of running the team.

Custom sewn team grey/black/white t-shirt	= \$20	not required for 2021
Custom sewn team transition t-shirt	= \$20	not required for 2021
Custom sewn team polo shirt	= \$30	one required per student
MakeShift 10 th anniversary t-shirt	= \$25	optional
Team fee	= \$175	required*

Team shirts may be re-used from year to year, returning students do not need to buy new shirts each year.

Many team members choose to purchase optional items like team hoodies or Loudmouth pants. Team supporters (parents) are welcome to purchase single-colour team shirts or hoodies. These items are optional and will be offered for sale during the pre-season.

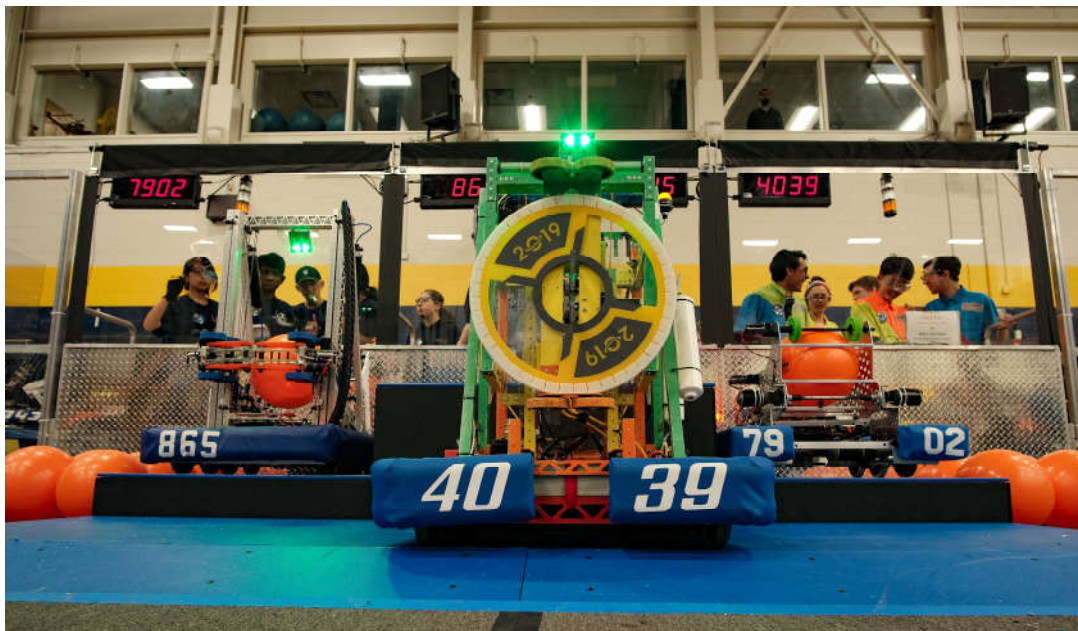
*note that more than half (\$100) of the team fee may be returned to the student if they generate new sponsor funding – see a Lead Mentor for details. The team will not turn away motivated students – see a Lead Mentor if money is the only thing holding you back from joining MakeShift – we'll figure something out.

12. Post-secondary and Career Opportunities

The *FIRST* Robotics program is an excellent way to explore many of the careers one would encounter in a high technology company. Students will be exposed to the principals of engineering, tools, and processes that practicing engineers employ but mentors do recognize that not all students will pursue careers in engineering. The team will attempt to expose all the students to a variety of technological careers. We highly encourage the students to discuss the possibilities of careers in technology with team mentors.

There are many scholarship opportunities associated with the *FIRST* program. The “Awards” sub-team will be providing information regarding these as soon as it is available. This information is also listed on the *FIRST* web site at <https://www.firstroboticscanada.org/scholarships/>.

ArcelorMittal Dofasco provided two \$1,000 scholarships for MakeShift graduates last year. Over four hundred companies, organizations and schools (including McMaster, Waterloo, UofT, Ryerson, York, Carleton, UOIT, Western, Nippising, Windsor, and Queen’s) offer more than \$19 million in scholarship opportunities to *FIRST* team members annually.



MakeShift Mentor Motto:

I do, you watch
I do, you help
You do, I help
You do, I cheer
