

TEAM 2994
The ASTECHZ
Team Handbook



DEDICATION. DETERMINATION. AND DUCT TAPE.

Table of Contents

The ASTECHZ in one page or less!	5
Introduction	6
Mission	7
Table of Important Dates	8
Team Goals	8
About	9
<i>FIRST</i> Robotics Competition (FRC)	9
“Gracious Professionalism” - A <i>FIRST</i> Credo	9
“Coopertition”	9
The Challenge	9
<i>FIRST</i> and Winning	10
FRC 2020	10
The Events	10
Team History	10
Team Logo and Motto	10
Team Awards	11
Team Organization	12
How to Join	12
Team Calendar	12
Team Dues	12
Team Time Lines	13
Preseason - September to December (Christmas Break)	13
Build Season - January to mid-February (From Kick-off to our first competition)	13
Drive Practice Times	13
Competition Season - March to the end of April	13
Post-Season - May to mid-June (end of school year)	14
Summer - July and August	14
Mandatory Events	14
Student Commitment	15
Student Expectations	15
Community Service and Robot Demonstrations	16

Student Grades	16
Fundraising.....	16
Organizing Fundraising Events.....	16
Outreach.....	17
The FRC Game	17
Student Fundraising Achievement Opportunity	17
Team Dress Code	17
Team Meetings.....	17
Community Events	17
Competitions.....	18
Team Rules.....	18
Team Fellowship and Behaviour	18
Roles and Responsibilities.....	20
Robot Teams (Build Teams)	20
Design Team	20
Fabrication Team.....	20
Controls Team.....	20
Business Teams (Non-Build Teams)	20
Student Leadership Opportunities.....	21
Team Captain(s).....	21
Safety Captain	21
Team Leaders	21
Leaders-In-Training	22
Competition Teams.....	22
Drive Team.....	22
Judge Handler	22
Pit Crew and Pit Boss.....	23
Spirit Team	23
Scouting Team	24
Team Structure	25
Team Communication.....	25
During Competitions	25

Team Alumni Involvement26

Parent Responsibilities.....27

Team Safety28

Safety Agreement28

TECHNICAL FACILITY PRACTICE/CONDUCT AGREEMENT31

TECHNICAL FACILITY SAFETY AGREEMENT32

Team 2994 – The ASTECHZ Student Code of Conduct33

Parents/Guardians Acknowledgement:34

The ASTECHZ in one page or less!

What do we do?

We design and build a really cool robot and compete against other robots in a game that's different each year! But it's more than just building a robot – our team operates like a small business and feels like a family. We have different “sub-teams” groups that handle everything from marketing and fundraising to design and programming. Even if you have no idea how to hold a wrench, there's something for you here, and we'll teach you how! NO Prior Skills Required!!!

Why?

Because it's FUN! *FIRST* is all about having fun while learning, and so are we! Along the way, you can enhance your technical skills like mechanical and electrical work and computer programming, but you'll also learn about teamwork, leadership, respect, and integrity.

What are the basics?

Team 2994 works with engineering and business mentors to learn from industry professionals. During the fall, our “sub-teams” learn about specific skills we'll need when it comes to building the robot and running the team. In early January we learn what this year's game will be, and from then through mid-February we design and build our robot! During March and April, we travel to competitions and have a great time meeting other teams, checking out all the different robots that have been built, and of course cheering for our robot. Once the competition season is done we do fun events and plan for the next year.

What do team members do?

Participate - your participation determines what you do at the competitions, where the big excitement is! But don't worry if your schedule doesn't allow a huge time commitment. You can be on the team to whatever degree your schedule allows – the only difference is that you may not have the most glorious responsibility at the competitions.

When do we meet?

Team Meetings are held weekly. Currently, meetings are held at 5:30pm Mondays – location to be determined. During our build season we meet more often in order to meet our goals.

What's in it for you?

Besides building a really cool robot, you mean? How about hands-on learning from people who do real-life engineering and business management every day, or great experiences with a team of fun students, or lots of college and university scholarship opportunities. More than 200 organizations offer scholarships to *FIRST* Students. It looks great on your college/university applications too – and your mentors can write recommendation letters and be job references for you!

Where can I find more info?

On the web, our team's website is www.team2994.ca. You can get more information on the *FIRST* organization at www.firstinspires.org or www.firstroboticscanada.org. A useful forums are at www.chiefdelphi.com.

Introduction

Welcome to Team 2994 – The ASTECHZ! We are excited to have you as part of the team. This handbook contains the key policies, goals, and expectations of The ASTECHZ and its members along with other information you will need during the robotics season.

The success of the team in robotics and its numerous other activities is built on the creativity and productivity of our members. Our team has grown from very modest beginnings and continues to grow each year. Our growth and success is based on the dedication and determination of it's past, present and future members. **Everyone's work is essential to fulfilling our team's goals every day.** We cannot stress enough the importance of each member's commitment, contribution and responsibility in keeping our team running smoothly. We hope that in participating as a member of the team, you will acquire and continue to use the skills taught to you here through your post-secondary education and into your future careers, eventually returning to give back to the *FIRST* community that we are sure you will grow to love and cherish.

Dedicated student members and mentors of The ASTECHZ have ensured the continued success of the team as we enter our 10th season of competition. We are proud of the accomplishments of the past robotics teams, and the foundation which they have built. We are grateful for the opportunities that our mentors and our sponsors have given us and we are honoured to carry on our past traditions of excellence.

We look forward to the opportunity to continue to give back to the *FIRST* and our local communities in every way we can. At Team 2994 – The ASTECHZ, we look forward to new members and happily welcome them to join our diverse community. We invite new members in the hope that they will grow to appreciate our robotics family as we do. As for our veterans joining our team for yet another year, we welcome you back with open arms and hope you will pass on the skills and knowledge that you have already learned to the new members of the team. Our hope is that you will get as much or even more out of this experience than you did in previous years.

Mission

Team 2994 – The ASTECHZ Team’s mission is:

- To inspire students to explore, experience, and appreciate science, technology, engineering, and math (STEM Education) through hands-on participation in team activities.
- To promote life skills such as teamwork, responsibility, time management and accountability and prepare members for leadership roles in our community and in their professional lives.
- To promote student growth by providing a hands-on learning environment where all styles of learners can find success.
- To promote the ideals of “Gracious Professionalism™” and “Coopertition” in all that we do.
- To give students opportunities to experience real-world engineering, be involved in technical and non-technical activities and to work with and learn from industry professionals.
- To be role models in our community, using our knowledge and resources to help other students, mentors and FIRST teams succeed.

Table of Important Dates

Event Name	Date
Team Forms Due	October 16 th , 2019
Team Dues Due	October 16 th , 2019
FIRST FRC Kick-off	January 4 th , 2020
Final Build Weekend	February 15 th -17 th , 2020
Bag and Tag Evening	February 17 th , 2020
Robotics Team Bottle Drive	May 17 th , 2020
Robotics End of Season Celebration	June 15 th , 2020

Team Goals

Each year the goals for a given season may change based on the team dynamics, the challenges that the team faces and the individuals who are part of the team. However the overall goals of the team do not change yearly. These goals contribute directly to our team's success. They are reviewed each year and may change slightly, however they generally remain the same.

Our Yearly goals as a team are:

1. To Have Fun!!
2. To build one fully functioning FRC robot that meets the objectives set out by the strategy team.
3. To build and put up a full and accurate practice field.
4. To have our robot fully designed in CAD.
5. To hold regular drive practices during the entire year.
6. To submit at least one mentor and one student for awards. (Woody Flowers and Dean's List)
7. To be recognized as a District Safety Award
8. To qualify for FOPC and World Championships

About

FIRST Robotics Competition (FRC)

FIRST, an acronym for "For Inspiration and Recognition of Science and Technology," it is a non-profit organization founded by Dean Kamen in 1989. The *FIRST* Robotics Competition (FRC) combines "Gracious Professionalism" and "Coopertition" with technology. *FIRST* is a unique partnership between industry and academia, resulting in an environment that fosters a deeper appreciation for science and technology. Students work side by side with professional engineers and knowledgeable mentors to learn- while-doing, giving students a real world experience.

"Gracious Professionalism" - A *FIRST* Credo

"*FIRST* celebrates high-quality, well-informed work, done in a manner that leaves everyone feeling valued. Gracious Professionalism seems to be a good descriptor for a big part of the ethos of *FIRST*. It is one of the things that makes *FIRST* different and wonderful.

In *FIRST*, Gracious Professionalism means that we learn and compete like crazy, but treat one another with respect and kindness in the process. We try to avoid leaving anyone feeling like they have lost. No chest-thumping barbarian tough talk, but no sticky sweet platitudes either. Knowledge, pride and empathy comfortably blended."

"Coopertition"

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

The Challenge

The *FIRST* Robotics Competition challenges teams of youth from 14 to 18 yrs old and their mentors to design and build a robot in a six-week time frame, using a standard kit of parts, other custom fabricated parts and mechanisms. The team has to analyze the game and strategize what type of robot would perform best. Typical teams meet months in advance of the building period to learn basic skills so they are better prepared. The goal isn't simply to build a robot; the robot is a vehicle for learning much more. The real goal is building a collaborative team, a supportive community and a solid strategy for problem solving during the competition.

FIRST and Winning

FIRST redefines winning for students. Scoring the greatest number of points is terrific, but winning comes with excellence in design, demonstrated team spirit, gracious professionalism as well as the ability and maturity to overcome obstacles. Winning means building partnerships with other students, with professionals, between school and business and among communities.

FRC 2020

The 2020 *FIRST* Robotics Competition season begins with the release of the kit of parts and game rules on the first Saturday of January after the holidays (See List of Important Dates for exact date) at the “**KICK-OFF**” and will involve over **2000 teams** from across the U.S., Canada, the United Kingdom, Brazil, Israel, Mexico, New Zealand, Germany, Turkey, Australia Netherlands and more. The teams and competitions bring together students of different levels of achievement, different racial and social backgrounds, boys and girls from inner cities, rural and sub-urban areas from across North America and the world.

The Events

FRC has become an international program and is continuously growing. FRC teams will participate in many regional and district competitions that are scheduled to take place in March and April around the world. In addition a Championship Event will be held in Houston, Texas and Detroit, Michigan in late April. The Championship event draws approximately 600 teams from across North America and from around the world. Teams, fans and spectators will number well over 30,000 for this single 3-day event.

Team History

Team 2994 began in September 2006 as an after school club with the goal of designing and building a robot to compete in the Ontario Skills Competition. With only four students and one mentor, the team saw limited success in its first season. With a greater determination than ever and a few more members, the Robotics Team placed eighth in the province in its second year of competition at Ontario Skills. In September 2009 Rolling Thunder, now The ASTECHZ, mentored by Team 1053, competed as a Rookie Team in the *FIRST* Robotics Competition at the Hershey Centre in Mississauga, Ontario. With limited resources but with much determination the team ended the competition in forty-third place out of fifty-three teams, a successful showing for our little rookie team. In 2019 after a very successful competition season we made the decision to move from a school based team where we can only include students from one school to a community base school where we can include anyone who is interested in robotics and *FIRST*.

Team Logo and Motto

In 2009 the team adopted the name “Rolling Thunder” as a direct result of the robot design for the FRC competition. When the doors on the robot opened and closed it sounded like thunder.

The following year the team decided to develop a new look and feel. After much discussion a new team name and motto was selected, and The ASTECHZ was created. ASTECHZ represents the following, **AS** stands for **All Saints**, **TECH** stands for Technology and **Z** is a cool way of pluralizing the word. As we transition to a community team we will keep the name going forward but change the meaning to **AS** to stand for **All Students**, The name ASTECHZ suits us because we are a group of students who are interested in technology. We are the “techies”.

Our motto is "Dedication, Determination, and Duct Tape." The ASTECHZ much like their name sake, are a group of dedicated, determined individuals and everyone needs a little duct tape in their life now and then. The success of our team, at our first few competitions was a result of the team's dedication, determination and yes, the use of duct tape! Today, as a symbol of our modest beginnings, we still find a place for duct tape on each of our robots each year.

Team Awards

Golden Sprocket Awards

Each year an award will be given to the top student and mentor of Team 2994 as described below. If no suitable candidate can be found then the award will be withheld for that year.

Golden Sprocket Award for Students

This award is given to a grade 12 student (or students) who have participated as a student member of Team 2994 for a minimum of one year. The recipient should be a role model to other team members both academically and within the community, should play an active role in all aspects of the team, promoting safety, continued learning, and the values of *FIRST* to all team members and mentors. The recipient should also have strong leadership skills. The recipient of this award will receive a commemorative plaque, their name on the on the team plaque and a \$500.00 bursary for post-secondary education. Interested students need to submit a one page essay describing why they think they are the perfect recipient of this award. The submission date will be posted on the team calendar.

Golden Sprocket Award for Mentors

This award is given to the mentor who has participated in Team 2994's robotics program for a minimum of one season. The individual models and promotes the core values of *FIRST* robotics (ex: Gracious Professionalism, Coopertition), safety and a positive team atmosphere. The recipient of this award is a mentor who facilitates the learning of all through research, experimentation and exploration, who knows, understands and implements the “Roles of a Mentor” and who encourages students to be lifelong learners.

Team Organization

How to Join

In order to be a member of Team 2994, students must complete an on-line application and submit a resume to info@team2994.ca. An interview for selected students will be conducted by Team Mentors or outside professionals. Upon being selected for the team, students must complete a student information package which includes, a student/parent information form, a safety agreement, and code of conduct agreement and must register as a member of the team on *FIRST* Robotics STIMS. Forms will be available at team meetings in the fall. All documents are due by the date specified in the Important Dates Table as Team Forms Due Date. Students wishing to join the team after this date will be considered on a case by case basis.

Team Calendar

A team calendar has been created using Google Calendar. This calendar is kept up to date and is the best place to go to see what is happening with the team. Access to this calendar will be provided to team members via email, you can add the team calendar to your own Google calendar, simply clicking on the “+ Google Calendar” button on the bottom right hand corner of the calendar.

Team Dues

Team dues will be collected at a rate of \$200.00 per student member. These funds are used to help offset the cost of team insurance, team wear and other shared member expenses. Dues are payable by cheque, cash or via e-transfer to info@OCERA.club, password - Team2994 at the time of the Team Dues Due Date. Cheques should be made payable to **OCERA**. Dues are Non-refundable after December 31st.

Team Time Lines

The robotics team meets year-round with varying levels of activity by the “season”. A year in robots is divided into Five (5) seasons. The seasons are defined as: pre-season, build, competition, post-season and summer.

Preseason - September to December (Christmas Break)

Team Meetings: **Mondays from 5:30pm to 8:30pm(TBC)**

Part of the time will be used to cover team management, including administrative tasks, the plan for the coming week and any upcoming deadlines. The remaining meeting time will be used for presentations, training, work-sessions, or team building activities. The team will use the preseason as a time to do team building, fundraisers, community service, and to learn the necessary skills needed for the upcoming build season.

Build Season - January to mid-February (From Kick-off to our first competition)

Team Meetings: **Mondays(TBC) and Fridays 5:30 - 8:30pm - Build Activities**
Saturdays 9:00am - 5:00pm – Build activities

Note: Additional Meetings with individual sub-teams or the whole team will be added as required. The last weekend of our main build season is a very important time and attendance is required by all members. (This is usually Family Day weekend)

Drive Practice Times

Drive practices occur between the end of build season and the last competition we attend. Members of the drive team are required to attend these practice times. A more detailed time line/schedule will be provided to students before the Christmas break or at the *FIRST* kick-off event. Drive Team members will also be required to sign a contract.

Competition Season - March to the end of April

Team Meetings: **Mondays from 5:30pm to 8:30pm**

Meeting times usually follow the preseason schedule, however in order to prepare for upcoming events, (ex: make changes to the robot, practice presentations, etc...) additional meetings may be required by some members. These will be determined on an as-needed basis. During this time the robot and the team travel to two district competitions in Ontario and District

Championships if the team qualifies. District Champs are held in Mississauga. If successful at the district level, we may qualify for World Championships held in Detroit in early May. Worlds are the height of the excitement, the “Super Bowl” of the robotics season!!

Post-Season - May to mid-June (end of school year)

Team Meetings: **Mondays from 5:30pm to 8:30pm**

Post season is a great time to get started on activities and projects prior to preseason, and a good time to do demonstrations, fundraising and reach out to the community and build awareness. May and June is Sponsor thank you time, showing off our accomplishments and demonstrating to upcoming potential members, mentors and sponsors

Summer - July and August

Team Meetings: **Random**

In July and August we meet randomly and do presentations when asked. For those interested we may meet for coffee or dinner. This is a good time to have FUN and PROMOTE the Team at our leisure and take some time off.

Mandatory Events

As part of the team there are a number of events that students **must attend**. If a student cannot attend these events they must communicate this with Mr. Koscielski well in advance. The exact dates can be viewed in Important Dates section under the names listed below.

The following events are mandatory for the Robotics Season:

FIRST Robotic Season Kick-off (All Day Planning Session)

Final Build Weekend (**See Note Below**)

Robotics Team Bottle Drive

Robotics End of Season Celebration

NOTE:

Please be aware that the final build weekend is an intense time. On the last opportunity to finish the robot before competition. Many students stay late that evening, we usually are finished by 10:30pm and have a small celebration following the completion of the robot. It is crucial that we have as many team members as possible available for the weekend before.

Student Commitment - You get out what you put into it.

Participating in *FIRST* requires time and effort, but the effort will make a positive impact in the lives of many other people. Attendance is taken at activities, and it is the **student's responsibility to sign in at meetings**. All students are expected to show up on time and to stay for the required amount of time. Exceptions or special needs should be discussed with one of the team leaders prior to the meeting(s) and will be evaluated on a case by case basis. Students can communicate with the team leaders by email if necessary.

Student Expectations

Student members of the team are expected to demonstrate the core values of *FIRST* in all aspects of their student life. First and foremost, the ASTECHZ is a team. As such, team members will treat all other team members with respect and positivity, both during meetings and outside of meetings. Poor behaviour, suspensions from school and poor attendance may put a student's participation as a member of the team in jeopardy. A loss of privileges may be invoked and a student may be placed on probation if any of the above situations become problematic.

If a student is placed on probation, a plan of assistance will be developed outlining a specific time line, expectations and the steps required for the student to return to full membership of the team. The plan of assistance will be communicated to the student and the parents. The plan is intended as a means of getting back in the good books so to speak, not as a means of punishment.

Student members of the team should be **actively involved** with the team. Depending on school and extracurricular schedules, some students may be able to participate more fully than others. **The level of participation determines whether or not a student is able to attend competitions and Championships, and what role they might play.** Students are expected to show up **on time** for team meetings and events and remain for the duration of these activities. If you are going to be late please communicate this on the team's Slack #Attendance channel.

All members are encouraged to participate in **community service, robot demonstrations and fundraising** activities throughout the year. These activities are vital for the success of the team and they're a great way to have fun with your team mates. Each student is expected to collect a minimum of 20 Event Hours from doing such events. The number of Event hours a student has will be tracked, and may affect their ability to be considered for key roles or to go to competitions. Any event the team is doing outside of the regular team meetings and school day may be eligible for Event Hours.

Community Service and Robot Demonstrations

“Making a difference, not just a Robot” - The purpose of our Team participating in community activities is to serve our community and to spread the word about the *FIRST* program, and our team The ASTECHZ. Community activities will be posted on Google Calendar, announced on our Slack #CommunityOutreach Channel, and announced at the beginning of team meetings. New suggestions for community involvement are always welcome.

Student Grades

Grades are important!! Students should strive to maintain their overall school average. Students must complete school work before participating in team work sessions and activities. However, we do offer homework help, especially during build season when we are putting in long hours. If you need help please ask, we have many industry professionals who work with our team and who are experts in a variety of subject areas. Help is always available.

Students not maintaining their school average will not be pulled from the team but will be encouraged to seek either tutoring help or spend time before build season meetings getting homework help.

Fundraising

Fundraising is an important part of the team’s budget. Every student is expected to participate in the team’s fundraising efforts; failure to participate may result in making a student ineligible to attend competitions.

Organizing Fundraising Events

Each returning student is **encouraged to help organize at least one fundraiser**. Organization teams can be from 2 to 4 students, depending on the size of the event. As a guide line, a fundraiser should bring in at least \$100.00 per participant, after expenses.

The organization group is responsible for the following for each event they organise,

- signing up/recruiting volunteers
- all publicity and announcements,
- any required forms, (permission forms etc...)
- estimates,

Each activity will have one “in charge” student who will be responsible for overseeing the activity, arranging for robot and member transportation, a camera and for an adult supervisor.

Student Fundraising Achievement Opportunity

Since such as a large portion of the team's ability to meet our goals is being able to fund our efforts that are required, there will be benefits to those students who go above and beyond to help the team fundraise. The chart below outlines the funding requirements for these benefits.

Achievement Level	Amount Required	Benefit
Platinum	\$5000	100% of Team Dues and First District Travel & Accommodation Cost
Gold	\$2000	100% of First District Travel & Accommodation Cost
Silver	\$1000	50% of First District Travel & Accommodation Cost
Bronze	\$500	25% of First District Travel & Accommodation Cost

These amounts can be achieved through multiple forms of fundraising efforts, outside of the team's already established efforts (Preview sponsors, Euchre tournaments, etc.).

Outreach

Spend some time telling the community about our robot. (e.g. School presentations, interviews, writing press releases, web page articles, etc...)

The FRC Game

Each year, the FRC game changes. It is important that every team member have a **good understanding of the game and how it works**. This understanding is essential when the team is working on design concepts and game strategy. In addition, everyone on the team should be able to explain the basic idea of *FIRST* and the fundamental elements of the game to judges and the general public at events. **EVERYONE NEEDS TO READ THE GAME MANUAL!!**

Team Dress Code

Team Meetings

For team meetings, students are expected to wear a team shirt (t-shirt, long sleeve t-shirt or polo), please note that while you may wear a team hoodie during a meeting, these are not allowed while working with tools so another team shirt underneath is required. Specific meetings may require more formal wear as described below such as the evening of the team picture.

Community Events

Team Swag (team t-shirts, sweatshirts, polo shirts) **MUST** be worn to ALL team events (community service, fundraiser and demonstration events). For new students, all black, plain (no logos) T-shirts or a long sleeve shirt will be sufficient. For more formal events, members should wear our team polo shirt and black pants (not leggings/yoga pants) and presentable closed toed

shoes. Every effort will be made to make sure new students receive team wear as early as possible. We have some shirts to loan if needed.

Competitions

All team members must wear a team uniform described for that day. An email outlining what is worn on which days will go out before the event. Parents or family members, who attend competitions but do not have their own team swag, can be provided with a team shirt on loan for the event.

Team Rules

We ask that **EVERYONE** treat **EVERYONE** with respect and treat others the way that they want to be treated. **We also want EVERYONE to have fun!!** The most important part of the team is learning while having fun.

Our team is large and has many tasks. We also travel to many areas around our local community and beyond. In an effort to be a fun, role model team and to keep everyone on our team safe and accounted for, we have several rules.

1. Safety – is number ONE!

2. Be nice to everyone – At competitions, members of the *FIRST* community and judges are everywhere. In addition to the venue, they are on the street, in the same hotel as us, or eating at the same places as us. We ask that, as a general rule, everyone be respectful of everyone they meet. This means being quiet in the halls of the hotel, watching your language at all times, even among friends, and being polite and friendly to everyone you encounter

3. No drama! – Everyone wants to have a good time and the best way to avoid that is by reducing the amount of drama. If you have a real issue, it is best to discuss it with a mentor or chaperone.

4. Clean up after yourselves – No one wants to clean up your mess, so it's your responsibility to do so. This includes throwing out your dishes after team meals, logging out of computers you're working on, cleaning machines and sweeping the floor after working in the shop, and putting away any materials where they belong in our storage container.

Team Fellowship and Behaviour

Part of belonging to the ASTECHz family is spending a large number of hours working side by side with other members of the team. Some of these may be life-long friends and others may be relative strangers in comparison. Regardless of how well you may know the person(s) you are working alongside, it is important that everyone's activities and actions remain positive,

respectable and constructive so that team as whole can continue to proceed and grow. Some of the activities which can cause this team fellowship to falter are listed below and are to be avoided at all times. If there are any issues with these items then it is important to address them with the lead mentors in order to make sure that behaviour is corrected before it becomes too large an issue to remedy.

- Disparaging comments about other team members, both in person and online.
- Wasting time during meetings on video games, youtube, etc.
- Negative behaviour such as shoving, hitting, fighting or name calling.
- Distracting other team members from their activities or tasks.

It is important to remember that like a varsity sports team, the expectation of members of the team are much higher than those expected of an average student. The efforts of the team members, mentors and parents who are volunteering their time must be respected by being attentive and engaged during the time we spend together. Each team member is responsible for doing their part in maintaining this type of environment and fellowship among team members.

Roles and Responsibilities

Robot Teams (Build Teams)

Design Team

Although the entire team participates in strategizing and brainstorming solutions to problems within the game, the Design Team is responsible for designing and testing a functional robot using computer aided design (CAD). Team members will use creativity and problem solving to develop effective solutions to engineering problems. For the first couple of weeks during build season, the Design Team designs and tests a detailed virtual version of the robot. Additionally, they create computer generated drawings of parts and assemblies for the Fabrication Team to use as guides. The design team is also responsible for writing the Bill of Materials (BOM), which allows the team to determine various specifications of the robot, for example the total weight and cost, before fabricating it. Once the Design Team finishes most of their tasks, they team up with the Fabrication Team to help fabricate the robot.

Fabrication Team

The Fabrication team is responsible for the building, purchase and assembly of all parts necessary to build the robot. The Fabrication team is responsible for ensuring that our robot complies with all rules and regulations of the competition and must work closely with the Controls team to attach electrical & pneumatic equipment to the robot. The Fabrication team must read and understand the design specifications and restrictions provided in the game manual by *FIRST*.

Controls Team

The Controls Team is responsible for the overall programming and functionality of our robot(s) as well as the wiring and installation of electrical parts on the robot. The members of the Controls team are responsible for coordinating with the Design and Fabrication team to ensure functionality. As part of the controls team, additional hours will be required in order to learn Java and become familiar with the robot control system. Students wishing to be part of this team should already have a basic knowledge of computers and basic computer programs such as MS Word, Excel, MS Explore. They should also have access to a computer at home.

Business Teams (Non-Build Teams)

Students who wish to gain leadership and business experience will have the ideal opportunity by participating on the Business Team. With an annual budget of \$50,000, the Business Team facilitates the fundraisers and sponsorship opportunities which are very important for the success of our team as a whole. Students who have strong communication, organizational, and financial management skills are critical to the success of our team. The Business Team also works on representing the team on social media and major written projects, such as business

plans, or awards that we can submit at competition. There are many benefits of being on the Business Team, but an example is that it is a great opportunity to learn real world skills that you can implement in post-secondary or a workplace setting.

Student Leadership Opportunities

Team Captain(s)

The captain of FRC Team 2994 should have at least one year experience working with the team. The Captain should possess good interpersonal skills, a positive attitude, good public speaking skills and problem solving skills. They should set the example in terms of “Gracious Professionalism”, “Coopertition”, team spirit, and the teams overall vision. The captain should be responsible, hardworking, and motivated, in order to encourage the team to succeed. The candidate should be a responsible, hardworking, experienced individual who has the skills to motivate and encourage the team in order to make it a success.

Responsibilities

- Guide and support other sub-team leaders, and assist them as needed
- Help plan and chair weekly team meetings with the lead mentor.
- Chair weekly team leaders meetings
- Chair, in conjunction with the Lead Mentor and other Mentors team update meetings, record notes and action items in leaders binder, follow-up
- Establish and maintain Sub Team discussion log during build season
- Follow up on team leaders meeting minutes, ensure they are recorded and shared
- Establish and issue agendas for weekly leaders meetings (min 3 days in advance)
- Maintaining the student team manual
- Establish and maintain overall build season project plan
- Attend monthly Team Advisory Committee meetings

Safety Captain

The Safety Captain will monitor the safety practices of all members of the team. The Safety Captain must use common sense and good judgment when bringing an infraction to someone’s attention. The Safety Captain is responsible for developing and maintaining the overall safety program for the team. This may include posters, ‘give-away’ items at competitions and public relation activities. The Safety Captain must ensure all persons are wearing safety glasses and are working safely in the school facilities and at competitions. The Safety Captain must become familiar with the *FIRST* Robotics Safety Awards and Safety Tokens program at competitions. The Safety Team must also know where the EMT area is during competitions and report any injuries to the Head Mentor at the time of injury

Team Leaders

The individual team leaders need to apply for the position and will be required to attend by-weekly leadership meetings. The successful candidate should have exceptional organisational, interpersonal and leadership skills. They should also have at least one year of experience working as a member of the robotics team before applying for a leadership position. If a student is interested in a Team Leader position please see the lead mentor for additional information.

Leaders-In-Training

New for the 2019-2020 Season, the Leaders-In-Training are those member that have been identified by the current leads and mentors as potential leaders in the upcoming year(s). They will be responsible for performing the duties of the Team Leads when they are not present, and also working with the Team Leads to learn how to perform their duties. This position does not indicate any guarantee that the LIT will take on the position of Lead in the following season, but the person holding this role will be the most likely candidate.

Competition Teams

The Competition Teams are formed to execute specific functions during the competition. They may be formed during the pre-season or just prior to the competition.

Drive Team

Depending on the game rules for the season, the Drive Team may consist of one or two robot drivers (one for the robot, one for the manipulator), a human player and a student coach. The number of team members on the Drive Team is determined both under the rules for the current year's game and by the number of interested team members. There will be drive team tryouts which may include an interview, a written test on the competition rules, and driving test. Being a driver is more than just manoeuvring the robot well. A driver needs to be able to communicate with the team members and with the other teams in their alliance at the competition. The ability to think quickly and respond quickly to a changing game situation is important. Understanding the nuances of the rules is required. Good sportsmanship is a pre-requisite, as the Driving Team will act as our ambassadors to other teams. It is a huge responsibility but also provides many rewards. Driver/coach/human players will be selected by the mentors based upon an evaluation of the student's level of participation, demonstrated skills, and team enthusiasm. Students wishing to a member of a Driving Team must attend regular driving practices during the pre-season through to end of the season.

Judge Handler

A judge handler is a student who speaks with the judges at the competition on the team's behalf. They must know the ins and outs of *FIRST* and our local the *FIRST* community, our team and our history, the function and planning of the robot. A judge handler is the sales rep for our team. Dressed up at competitions, the judge handler is the one person who can wear a tie in

the pits. This is a very prestigious position, if you are interested speak with a mentor as we will directly/hand pick this person.

Pit Crew and Pit Boss

The Pit Crew and Pit Boss are responsible for the preventive maintenance and repair of the robot at the competition as well as the smooth operation of the Pit environment. Members are selected from among the various teams.

Responsibilities:

- Arriving at the competition in advance of the rest of the team to un-crate the robot and getting it ready for the practice rounds and competition.
- Operate the pit area at the competition
- Maintaining displays and infrastructure from which to mount display panels and other signage directed by the Administrative teams.
- Building and maintaining an attractive cart for transporting the robot
- Being prepared to answer judges and visitors questions in a knowledgeable, courteous and professional manner.
- Maintaining a time schedule for practice rounds and heats
- Providing a spares runner who is responsible for the team's inventory and who
- Responding to announcements for requests for parts from other teams and deliver them.
- During the competitions, the Pit Crew will be in charge of maintaining and fixing the robot in between matches.

In the off-season they are responsible for maintaining the previous season's robots, tools and materials.

To qualify for Pit Crew, students must demonstrate:

- an understanding of the subsystems and how they work,
- competency with tools,
- attention to detail, and
- a working knowledge of the rules

There are a limited number of positions, due to the space limitations in the pits; students will be selected by the mentors based upon participation, demonstrated skills, and team enthusiasm.

Spirit Team

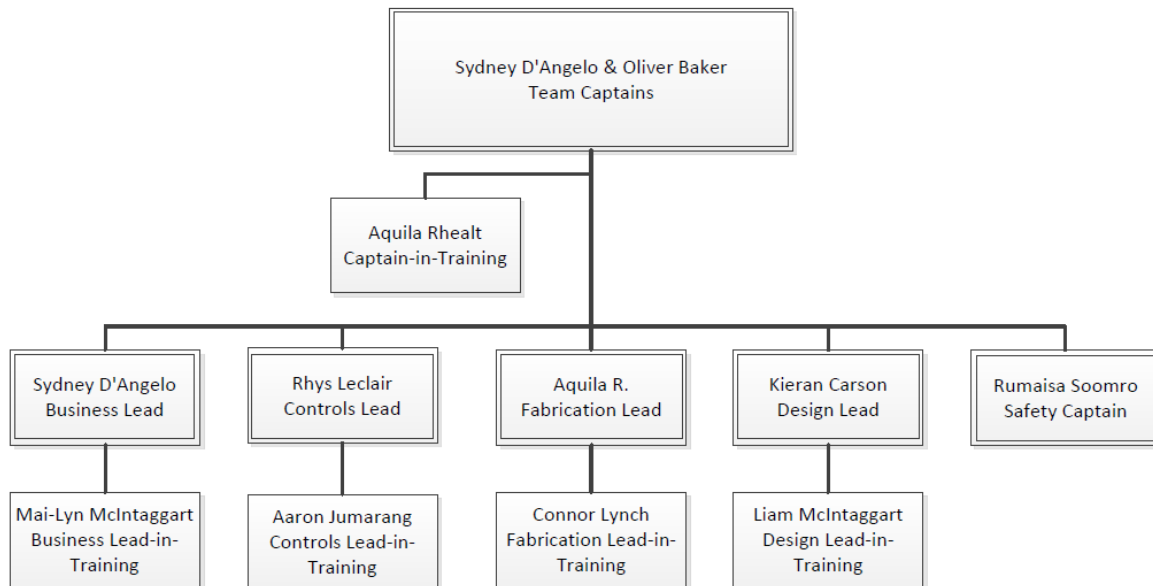
Want to wear a mascot costume? The Spirit Team is for you. Responsible for generating enthusiasm and modelling good sportsmanship at competitions, they show support for our team and other teams by leading cheers, greeting other teams, exchanging team merchandise and memorabilia, and creating enthusiasm for *FIRST* and our team through their words and actions. The Spirit Team develops the cheers, signs and distributes team buttons. Showing spirit at the

competitions is very important by increasing the energy level of the team and by making the events more fun for all involved! The Spirit Team is also encouraged to work out special activities that allow us to bond and make friends with other teams, a very important aspect of robotics and our team.

Scouting Team

“Good scouting can make an average robot awesome, bad scouting can make an awesome robot lose” The Scouting Team is responsible for analysing other team's strengths and weaknesses before and during competitions. This information is used to make alliance selection choices in the final rounds. Prior to the events, the Scouting Team will develop materials and research other teams' capabilities. At the competition, they are responsible for coordinating the collection of data on the other robots and teams. They then correlate and analyse the data so we can make informed decisions on other teams during the alliance selection process. The Scouting Team in conjunction with the Drive Team is responsible for promoting Team 2994's capabilities to other high-ranked teams in order to improve our team's chances of being selected as an alliance partner.

Team Structure



Team Communication

Due to the nature of our program, email is the most important form of communication used within our team, as all critical information will be sent via email. Students, mentors and parents are required to provide an email address in order to keep up to date with the team. Emails from the team are sent from a number of people. **Please ensure that we are listed as a contact in your email settings to avoid emails being sent to the junk folder.**

Emails are sent out at various times in the day, including weekends. It is imperative that students check their email daily. Emails must be kept professional and positive. Emailing is not a forum to complain about team members. If you have questions or need to communicate with the lead mentors or other team members please do so with the utmost professionalism and tact. The team also maintains a Slack communication stream which all members will be invited to. This will be used as the ongoing communication tool between meetings, especially during build season. Each sub-team will have their own channel, along with addition channels for major team activities such as community outreach and FLL mentoring.

During Competitions

Team members and parents will be given the mentor(s) in charge's cell phone number(s) during the competition. Phone calls and text messages must be kept professional. Phone calls and text messages should only be used for crucial matters and emergencies. Students will be provided with full contact information prior to the competition. Hotel contact information will be

provided with school permission forms. Students are asked **not** to make long distance phone calls from their rooms.

Other Forms of Communication:

Website: www.team2994.ca

Twitter: @FRC_Team2994

Facebook Page: www.facebook.com/Team2994

Instagram: frc_team_2994

Team Alumni Involvement

Team 2994 has a growing number of alumni who want to stay involved with the team in some way. We welcome their involvement, whether it's in a mentoring role, attending events to cheer the team on, or simply staying in communication on the Facebook page. Alumni member should refer to the Mentors Handbook for more details.

Parent Responsibilities

Parents can assist the ASTECHZ in many ways. Being part of a robotics team is just like being part of a sports team or an arts production. We are like a large extended family.

Parents are most welcome to join us at the robotics competitions. We require volunteer drivers to assist with the travel arrangements. Parents who volunteer as Volunteer Drivers must be comfortable driving a mini-van (rental) and sharing hotel accommodations with another parent or adult mentor. Parents who wish to attend the competition, not as a volunteer driver, must pay for their own rooms, but if enough notice is given, we can offer parents the same group rate at the same hotel the team is staying at.

Parent volunteering opportunities:

- proving food during Saturday build seasons**
- chaperoning student fundraising activity.
- assisting with BBQ's (food prep, event set-up, etc....)
- applying for grants and donations
- being part of our travel team
- being a team advisor.

Parents are asked to contact info@team2994.ca if they wish to help in any way.

Parents are more than welcome to stop by during any seasonal meeting to see what the team is working on. Safety glasses, which will be provided, must be worn in the "robotics work room".

** Due to the nature of build season, it becomes necessary to provide food to the students when working over long periods during the Saturday build times. In order to reduce the cost of meals to the team and to decrease the amount of pizza consumed by the team, parents are asked to volunteer to provide food (lunch) for students and mentors during the Saturday build days. An email will be sent in December with a Google document where parents can sign up for meals. Please provide enough food for 10 to 12 people per time slot. We have provided sign up 2 slots per build Saturday. Each slot represents 10 to 12 people, thus at each Saturday there should be enough food for between 20 to 24 people. A meal should consist of a main dish. EX: Chilli, sandwiches, hotdogs, Stew, etc... Desert is not required but always welcome. Thank you in advance on behalf of the team!!!

Team Safety

Safety is a whole team responsibility. Safety must be practiced, observed and followed at all times. Safety glasses must be worn in the lab at all times by all team members, mentors and visitors.

The following are Mr. McDonough's Golden Rules for a safe work environment.

1. **Think before you act!** - Common sense goes a long way in maintaining a safe work environment
2. **If you are unsure, ask!** - There are no dumb questions when it comes to safety.
3. **No horseplay!** - Very simple, don't do it.

Safety Agreement

The Safety Agreement below should be reviewed by parents and student members and must be signed by a parent and the student. The form must be returned to the safety captain no later than the end of October.

General Shop Safety Rules

1. Approved safety glasses must be worn while working in the shop
2. None of the following are allowed in the shop:
 - Cell phones, music players, headphones, or other electronic devices
 - Backpacks, bags or purses
 - Jackets, hoodies, or other baggy clothing
 - Food or drink
 - Anything else the teacher feels inappropriate

If you show up with any of these, you will not be allowed into the shop.

3. No shouting or yelling in the shop.
4. No horseplay, goofing around, or throwing objects. (zero tolerance)
5. NO running in the shop.
6. The emergency stops are there for emergencies. You can use them at any time you feel is appropriate. However, keep in mind it is like pulling a fire alarm.

7. Safety instruction is required before you operate a machine and you must know the safety rules for each tool before using it.
8. Never use any tools or machines unless there is a mentor in the room supervising.
9. Loose clothing, jewelry and long hair must be secured before operating any equipment.
10. Closed toed shoes must be worn while working in the shop. (NO sandals!!)
11. Never use a machine or tool if you don't feel well. If you feel sick, overly tired, stressed, or are under the influence of medication (or the lack of it) do not use any of the shop equipment and see a mentor.
12. Do not distract someone working on a machine – including the teacher! Distractions can cause serious injuries.
13. Do not crowd around someone using a machine. Keep a safe, arm length, distance back.
14. Make all machine adjustments with the equipment turned off and when all moving parts have come to a full stop.
15. Make sure all guards are in place and working properly before using a piece of equipment.
16. All tools should be in good condition. Use them correctly. If you are unsure please ask your teacher. Tool abuse will not be tolerated.
17. If it is broken, report it.
If it doesn't work, report it.
If it's broken or doesn't work, don't try to use it.
18. Always stand to one side of cutting blades and keep fingers away from blades and moving parts.
19. Dirt, dust, debris are harmful to your health and safety. Even if you didn't put it there, pick it up, clean it up, and help keep the shop clean. The shop must be cleaned and tools must be put away before anyone leaves for the day.
20. Never leave a machine running while it is unattended. Turn off the tool before walking away.

21. Report all injuries to the safety captain immediately, no matter how small even if you only need a band aid.
22. Always disconnect the power before changing bits or blades in equipment.
23. All spills must be cleaned up immediately, inform the mentors of any spills.
24. Keep rags and flammable materials in the appropriate container and location.

TECHNICAL FACILITY PRACTICE/CONDUCT AGREEMENT

Students working in a Technical Facility are reminded that the robotics program is closely related to the workplace. The robotics program is intended to train students not only in the knowledge and care of tools and machines, but also in forming desirable work habits which will assist them as they enter the work place. In other words, how you do your work is as important as the product. How you work and conduct yourself is called “shop practice”. It includes the following topics:

1. Tool Care – handling tools carefully, keeping them properly adjusted avoiding such practices as dropping them *or* laying them down carelessly; using machinery carefully and safely.
2. Technique – neatness and accuracy, avoiding awkward and careless methods of working.
3. Effort – nothing but your best is good enough; loafing and unnecessary conversations do not go unnoticed.
4. Co-operation - sharing tools and machines, taking *your* turn; planning your activities, assisting shop economy by avoiding waste, promptness in arriving for meetings and in cleaning up when signal is given.
5. Dependability - being reliable in carrying out shop duties assigned to you; checking your bench tools and equipment, reporting to a mentor any damaged or defective tools, breakages and errors in your work.
6. Safety Practice – keeping in mind safe practices and rules, a healthy respect for power machinery and respect for other students’ safety.
7. Resourcefulness – learning to think for yourself, following instructions and avoiding unnecessary questions.
8. Deportment – being attentive during lessons and working quietly at your job; horseplay, loud talk, whistling and noisy conversations have no place in the shop.
9. Courtesy – politeness and good manners go a long way in getting along with people.
10. Attitude – make the best of every job and be cheerful and pleasant about it. Be as positive as possible.
11. Health Problems – Inform a mentor of any specific medical problems that may be aggravated by the shop environment.

Student Signature

Print Student Name (first and last)

Parent Signature

Date

TECHNICAL FACILITY SAFETY AGREEMENT

As a student in the robotics program, there are a few safety rules you must observe. Rules will be kept to a minimum, but those we do keep are kept for a definite reason. Know the reason for each rule and it should be easier to remember and abide by that rule.

1. Students must never enter the shop unless a mentor is present.
2. Power equipment must never be operated unless the technical lead is in the shop.
3. Do not run in the shop. "Horseplay" will not be tolerated.
4. Use care and common sense when using any sharp tool. For instance, always keep hands and fingers away from the tool's cutting edge.
5. Protective equipment, such as safety glasses MUST be worn when working in the shop areas.
6. Long hair must be tied back, loose clothing and jewelry must be restrained or removed.
7. Never use any machine until you personally have been given instruction about the safe use of that machine. This means that if you are absent when safety instruction is given you must then check personally with technical lead for this information when you return.
8. Report any damaged or defective tools to a mentor.
9. If you cut or scratch your finger, even slightly, report it to a mentor and receive treatment. A cut left untreated can be dangerous.
10. Keep the benches and the floor clean. Replace all tools as soon as YOU finish using them. Place all scraps in the scrap bins or cans.
11. In the event of a fire in the shop, the students' only responsibility is to WALK out quickly and silently with their supervising mentor.
12. Welding goggles, leather aprons and welding gloves must be worn when doing any welding.
13. Only **one** operator per machine is allowed at anytime.
14. Use compressed air with caution. Wear eye protection. Direct air away from eyes, skin and any opening in the body. Never use compressed air to blow dust and dirt off your body.
15. The use of any music playing device which impairs hearing is strictly prohibited.

Consequences for Improper Action:

I understand that failure to comply with this agreement may result in injury to myself and /or others. I also understand that failing to comply with safety practices and procedures may result in my temporary and/or permanent loss of facility privileges.

I have read both the shop practice and safety agreements. I understand the possible consequences as mentioned previously and will obey these rules.

Student Signature

Print Student Name (first and last)

Parent Signature

Date

Team 2994 – The ASTECHZ Student Code of Conduct

You will get out of this team what you put into it! Positivity leads to positive outcomes; negativity leads to negative outcomes!

As a member of Team 2994 – The ASTECHZ, I agree to the following,

- Attendance at all meetings is expected. Sign in and sign out is required.
- You must inform the lead mentor prior to the meeting if you are going to be late or absent. 3 unexcused absences may result in a loss of privileges.
(ex: You might not be allowed to attend competition.)
- Students are expected to maintain their grade average in all classes. Robotics should not be an excuse for poor marks **(if you are having problems, ask for help)**
- Students are expected to contribute a minimum of 20 hours to outside robotics activities (e.g. IEEE Robotics, FLL, Fund-raisers, Presentations to Companies, etc...)
- Students must abide by the Technical Facility Practice/Conduct and Safety Agreement, all shop and machine safety rules.
- Treat all fellow team members with respect, on and off the field, in and outside of meetings and the school.
- FIRST activities are for robotics, not video games. Students are expected to be doing robotics activities during robotics events
- Not all tasks are glamorous, but they all need to be done. Approach every task with 100% enthusiasm.
- Students must adhere to the team dress code, as per the Team Handbook.
- No trash talking or bad mouthing other teams, ever. Remember **Gracious Professionalism.**

I have read and I understand the information presented here in the **Student Code of Conduct**, I have also read the **Team Handbook**, and I understand what I need to achieve in order to qualify for competition. I understand that I am a member of a team and, as such, I must act responsibly and be respectful to all team members at all times.

Print Student Name (first and last)

Student Signature

Date

Parents/Guardians Acknowledgement:

I understand that my son/daughter has chosen to be an active part of this team, and that while any level of participation is encouraged, that my son/daughter must fulfill the requirements of the student code of conduct.

I also understand that I am part of the team's success. I agree to attend information session(s), pre-travel meetings. I understand that parents can be a vital part of the team, and are a big help in getting many of the team activities accomplished. I will do my best to support my son/daughter and the team in this endeavour.

Print Parent Name (first and last)

Parent Signature

Date