



# 3491 FIX IT



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## Who are the FIX IT Team ?

The FIX IT team, #3491, is a *FIRST Tech Challenge*(FTC)<sup>®</sup> community based robotics team from Victoria, BC that is part of the Victoria Robotics Club. *FIRST Tech Challenge* is a robotics competition for high-school age youth. The ultimate goal of FTC is to engage youth in discovering the excitement and rewards of science, technology, and engineering.

The FIX IT team is community based and welcomes private, public, and home schooled students who are interested in *FIRST*<sup>®</sup> robotics learning opportunities and experiences.

## The Victoria Robotics Club Philosophy

We try to create an environment where youth can have fun, learn team skills, enjoy the challenge of robots and enter competitions. We believe science, technology, engineering and math should be accessible to all, and that youth should have the opportunity to explore those interests in a fun environment. We want high school robotics available to youth in Victoria.

Our primary goal is to give youth a hands-on team experience that is fun while they learn and compete to the best of their abilities. We don't try to win at the expense of others. Since this philosophy fits with the goals of *FIRST*, our teams have done very well over the years.

## What is *FIRST* ?

*FIRST* (For the Inspiration and Recognition of Science and Technology) creates opportunities for children and youth from 5-18y to compete in robotics competitions at a level that is appropriate for the age and skill level. See <http://www.usfirst.org> for more information.

FTC is an exciting, international, competition for high school students that engages them in solving an engineering design problem in an intense and competitive way. Teams have to design a robot to compete in this year's game, maintain an Engineering Notebook that documents the development of the robot, and do community outreach.

FTC involves thousands of students from around the world. Each team is comprised of adult mentors/coaches and a maximum of 10 high-school aged students. Teams compete for a series of awards honouring team accomplishments in areas like engineering, design excellence, competitive play, sportsmanship, and high-impact partnerships between youth, businesses, and communities.

*FIRST* engages students from various backgrounds, instilling new ideas and concepts in more experienced students, while helping to inspire, motivate, and encourage learning basic principles and skills among students with less experience. Through their *FIRST* involvement, students also learn about important, life-long skills such as planning, research, collaboration, mentorship, and teamwork.

## **BENEFITS OF FIX IT TEAM MEMBERSHIP**

Team members can choose from many opportunities.

- Earn High School Credit
- Learn to Build Robots
- Travel to Seattle, Las Vegas or St. Louis
- Learn CAD
- Meet other Teams
- Earn Volunteer/Work Experience
- Gain Team Building and Leadership skills
- Win trophies, awards or scholarships
- Learn a Programming Language
- Win Science Fair Awards and a trip to the Canada Science Fair
- **Having Fun!!!!!!**

## **A TYPICAL FTC SEASON**

The FTC season officially begins the second weekend in September, but new team members can join throughout the year. The FIX IT team goes to a Kick-Off event in Seattle where this year's challenge is released and team members can attend workshops to learn new skills.

Team members have 10-12 weeks to design, build and program a robot to perform that year's challenge. Teams compete in up to three qualifying competitions, usually starting in late November, and culminating with the World Championship in April, if we qualify. Every team member is encouraged to participate in at least one competition.

The team meets throughout the year for fund raising, team building, training, and community activities. In the off-season (spring and summer), we may meet only once a month for special team building and learning opportunities, or we could be running a week long robotics camp.

Meetings can last 4-6 hours, once a week. There will be some work to complete between meetings (i.e. journal entries, programming, robot design, team spirit projects, etc.). Meeting schedules and activity plans will be communicated to team members and their parents via email. Team members are responsible for reading and responding to email notices at least twice a week.

## **JOINING the FIX IT team**

Membership is limited to ten students. New members must complete an application.

Applicants under consideration will be invited to three team meetings, to determine if the student and team are a good fit for one another. As a community based team, home learners, public, and private school students are all welcome to apply to be part of our team.

If the Team and Applicant agree that they would like to continue working together after the initial three meetings, there is a one time contribution of \$200 per member, which goes towards team expenses. Team members must also comply with attendance, behaviour and grade maintenance requirements to remain part of the FIX IT team.

# TEAM ROLES and RESPONSIBILITIES

(Students are expect to be part of 2-3 different groups.)

## **Building Team**

The lead builders make decisions about building, and work to achieve consensus among team members on the mechanical design of the robot. Builders make related Engineering Notebook entries for robot design and construction. The Build Team will include someone responsible for Quality Assurance who will ensure that all wires and critical components of the robot are secure and in compliance with Challenge guideline and requirements. The Build team will also include someone responsible for hardware and tools management, to ensure that all equipment is well cared for and properly stored and inventoried.

## **Programming Team**

Lead programmers ensure that programs are completed by appropriate deadlines, and are responsible for Engineering Notebook entries related to programming. Programmers will aim for programs to work 90% of the time or better, and will schedule time with builders and drivers for changes and driving practice.

## **Awards Team**

These members will ensure that we're working effectively towards the highest award recognition by being well informed about award requirements and encouraging and guiding team members towards top performance in all areas.

## **Chief Game Analyst**

This person, in coordination with the coach and adult mentors, is responsible for knowing game rules, robot mission and challenges, and communicating this critical information to team members. The CGA leads strategy discussions involving all interested team members, including the Building and Programming Teams. The CGA will also verify that programming, mechanical solutions and proposed solutions are addressing needed goals, and in compliance with the rules.

## **Safety Captain**

The Safety Captain will help establish safety rules and plans to enforce them. Responsibilities include ensuring that sufficient safety glasses are available and that they are worn by adults and youth at relevant times during practices and competitions, and that clothing and behaviour is appropriate with respect to safety of team members and others.

## **Marketing and Fund Raising Team**

This team, in coordination with adult mentors, is responsible for helping create a team business plan, coordinate fund raising efforts, assist with community outreach opportunities, and maintaining team finance records. This Team will also ensure that the team "look" is effective, neat and well presented, and will also help develop and maintain sponsorship and team information packets, and may help with website entries.

## **Playing Field Specialist**

This team member organizes the building of this year's playing field including the purchase of supplies, understanding the field drawings, and coordinating build days. Includes maintenance throughout the season and setting up the field for demos and special events. Most team members are expected to help with the initial building of the playing field.

### **Photojournalist**

This team member helps document, via video and photography, the team year, and updates the website with photos. The complete build process should be chronicled, as well as tournament activities, with photos for use in marketing and news media.

### **Team Spirit**

This team will help create team cheers, pins, banners, signs, and competition give-aways for fun and PR, and help develop the team's identity with respect to encouraging spirited support and fun at meetings and events.

### **Robot Drive Team**

Tele-op (remote controlled) drivers are typically those members who show an aptitude for remote control finesse, strategy and precision, but all who are interested are welcome to learn to drive and will be given a chance to drive the robot during competition or practice rounds.

### **Public Relations**

Members who speak with other teams and coordinate FIX IT specialists to help other teams, as well as create connections with in the community

**Website Manager** – maintain the team website

**Note:** Parents are encouraged to learn about and be part of the team. While some team roles must be done by the students (e.g. designing and building the robot), other roles can be done by adults (e.g. Helping to organize a fund raiser, planning team travel, video taping, ... ).

## **BUILD SEASON**

### **Team Meetings**

Meetings will be held every Friday, unless otherwise noted, allowing from 3-8pm. Additional meeting dates and times may be added as necessary prior to competitions. **Attendance at meetings related to your team jobs is mandatory.** If you can't make a meeting, please advise team mates and coach as soon as possible. The team has a potluck dinner break around 6p.m.

Meetings and agendas, as well as all other important notices, are sent out via email. ***All members are expected to check their email regularly and to actively communicate with one another and the coach about meetings.***

**Note:** There is a "**build freeze**" before every competition. All major design and construction must be completed two weeks in advance of competitions. All major programming changes must be completed one week before the competition.

### **Meeting Agendas**

The agenda for each meeting, with specific tasks and goals, is coordinated between the team members and the coach. 15-30 minutes will be allotted at the start of each meeting for general administrative housekeeping. 30 minutes are allotted at the end of each meeting for clean up and Engineering Notebook Entries. Agendas will be sent out via email in advance of each meeting.

## Expectations at Meetings

**Gracious Professionalism and Respect** are expected at all times, for each other, for adult coaches and mentors, and for anyone with whom you're working, anywhere, at any time.

**Be an Active Participant** – If there doesn't seem to be enough for you to do, tell us; work with other team mates; take the initiative when you see something that you can do; don't wait to be asked to help.

**Be Informed** – All members should be thoroughly familiar with rules of the competition, team goals, arrive ready to work at meetings, and understand individual and group tasks.

**Communicate** – Ask questions if you need help or don't understand something. Communicate clearly, often and openly with each other, your coach and mentors

**Be Responsible** – Be conscientious about the use and maintenance of equipment, parts and tools. Put things where they belong so they can be easily located when needed. Get to meetings on time; be sure you know what your role is and carry out your responsibilities at meetings. Clean up after yourself, and help others do the same.

**Be Involved** – Focus on getting to know your team mates. Personal Electronic devices are not allowed at team meetings or events. Cells phones must be turned off and left with coats.

**Have Fun!!** The more respectful, professional, informed, communicative and responsible you are, the more fun you'll have and the more memorable and enjoyable your experience, and that of your team mates, will be.

## Expectations at Competitions

**Be Graciously Professional** at all times. Help your team mates and other teams as able.

**Be Positive!** - Team members are expected to participate at all times in a positive and helpful manner, whatever the competition outcome or trend.

**Show Spirit!** – Support your team by cheering and sign waving. Cheer other teams, too.

**Look Good!** – Wear you team shirt and hoodie, dark pants with a belt, and closed toed shoes. Sport a neat, clean appearance; no baggie pants, or loose items of clothing, for safety reasons as much as appearance.

**Be Safe!** – Wear safety glasses where required; Long hair, or anything that dangles must be tied back when working with the robot or power tools. Look where you're going at all times and pay attention to what you're doing.

**Have Fun!**

# Qualifications for Attending Competitions

**Appropriate behaviour at all times**, including at school and in your community, as well as at competitions or events.

**Attend 75% of meetings at a minimum, 90% of meetings of meetings that relate to your specific roles.**

**Complete and return all paperwork in a timely manner** – Throughout the year, various forms and agreements will be required. Please be responsible about completing and returning them.

**Understand and Meet Travel Requirements** – Many events are held in the U.S. If you don't already have a valid passport, apply for one immediately. Inform the coach if there will be any other limitations on your attending events in the U.S. (e.g. Custody agreements).

## ADULT TEAM MEMBERS AND PARTICIPANTS (Family at events)

- Adults working with youth on the FIX IT team need to provide a copy of a recent criminal records check.
- Adult participants are expected to adhere to the behavioural guidelines set forth for team members.

## TRAVEL

The FIX IT team travels to Vancouver or Seattle for many events. Team members are expected to attend at least one of these events.

Costs are kept to a minimum. Usually we take 1-2 vans to Seattle, and if possible, are hosted by a local team. Families are always welcome to travel with the team (at their own cost). Team members can stay with their family or the team, as long as they participate in all parts of the event.

Coaches/Adult Mentors may act as chaperones during travel. Depending on the number and mix of students, and 1-2 parents may be asked to accompany the team.

When possible, travel costs are paid by the team. Travel costs that exceed the team budget are paid by the families. Often our fund raising activities cover the most of the travel costs. The amount of money available for travel costs depends on the effort and commitment to fund raising.

# Finances

## Sample FTC Team Expenses

Expenses	Budget
Registration	300
Tournament Fees	200
FTC Resource Kit	250
Software Licence Fee	100
Replacement Robot Parts (motors, plastics)	500
Game Elements	300
Travel for Tournaments <sup>1</sup>	1,000
T-shirts	150
Display Board, printing, ...	100
<b>Annual Expenses<sup>2</sup></b>	<b>\$2,900</b>

### Notes:

1. All tournaments require travel including ferry and accommodations. Costs could be higher if we can't find a billet and need to book hotel rooms.
2. These costs do not include the original purchase of the robot kit, playing field or items already owned by families like tools, computers, printers ....

Travel costs are completely dependent on the number and location of the events we attend. Early in the season, the team (with input from the parents) will come up with a list of events where the team will participate.

Team members, with the support of their families, need to create a financial plan for the team. In the past, the FIX IT team has run summer camps, held bottle drives, done workshops at the public libraries, found sponsors, and had a benefit concert. Almost any activity can be successful if the team is enthusiastic and involved with the fund raiser.

Finding financial sponsors would allow the team members to focus on the robot rather than fund raising.