First Islander EXperts In Technology

3491 FIX IT

Handbook 2014/15

Who are the FIX IT Team ?

The FIX IT team, #3491, is a *FIRST Tech Challenge(FTC)*® 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*® robotics learning opportunities and experiences.

FIX IT stands for First Islander eXperts In *T*echnology.

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 meets once a month, and some team members will be working on activities between meetings, depending on what they choose to get involved with.

The team has 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.

Team members choose the types of activities they will be involved in. The time commitment varies with the different activities. Building the robot may take most of 2-3 weekends in October and early November, while the drive team needs to spend a few evenings practising with the robot right before a competition. All team members are expected to spend at least 30 minutes a week keeping up with emails, and answering questions.

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

New members are encouraged to come to three team meetings or activities 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 ROLES and RESPONSIBILITIES

(Students are expected to be involved in 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.

Chief Game Analyst and Strategy Team

This person, in coordination with the coach and adult mentors, is responsible for knowing game rules with updates and communicating this critical information to team members. The CGA leads strategy discussions involving all interested team members, including the Building and Programming Teams. An important part of any strategy is scouting how other teams play the game.

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.

Team to Team Communications

This team talks with other teams to find out about their robots, scores robots during practice rounds and matches, and negotiates game strategy with our partners.

Playing Field Specialist

This team member or adult mentor organizes the building of this year's playing field including the purchase of supplies and understanding the field drawings.

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 team displays, 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 within 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, ...).

Typical Season

September - Learning the new game, choosing a strategy, designing the robot

October – Building the robot

November – Finish building and programming the robot

December – Driver training, travel to league events in Washington State, robot redesign or repairs if needed.

January – Finalize robot changes, driver practice, travel to District event in Washington State.

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.

Information, team updates, travel plans and 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.***

Expectations at Team Activities

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. 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 during team activities or at 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 hat, black 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.

Be Reliable – when you volunteer for a team role, make sure your team members can count on you. Make sure you read the Engin eering Notebook and know what's happening.

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 one-on-one or travelling with youth on the FIX IT team need to complete the FIRST Youth Protection Screening.
  http://www.usfirst.org/aboutus/youth-protection-program
- 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. In some years, summer fund raising activities cover most of the travel costs. The amount of money available for travel costs depends on the effort and commitment to fund raising or finding sponsors.

Finances

Sample FTC Team Expenses

Expenses	Budget
Registration	300
Tournament Fees	150
Software Licence Fee	100
Replacement Robot Parts (motors, plastics)	500
Game Elements	300
Travel for Tournaments[1]	1,500
Shirts	150
Display Board, printing, ...	100
Annual Expenses[2]	**$3,100**

Notes:

1. All tournaments require travel including ferry and accommodations. The team expects to travel to a minimum of three events. 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.

Participation by team members and family members will be tracked for each fund raiser. Additional fees may be assessed based on participation in fund raising.

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

FIX IT Team
Events Schedule 2013/14

Sept. 7-8	FTC Kick-off (Seattle)
Dec. 7	Volunteer at FLL tournament
Dec. 13/14	FTC League Events 1&2
Jan. 11/12	FTC League 3 and District Tournament
Jan. 23/24 **	FTC Washington State Championship

Other possible events

Jan. 31/Feb. 1	FTC Nevada Championship
March 2014 **	FTC Super Regional Championships
April 2014 **	FTC World Championships

** The team must qualify for these events.