Advice to Rookie Teams

Read the Manual

Read the Manual, as soon as it is released (you can start now, even--some sections are already released). There are NO unimportant sections, just sections that you don't need as often.

pay careful attention to limits

pay careful attention to size/weight limits. Build 1" smaller than the size, and budget weight carefully to avoid the dreaded "We're 20 lbs over!" at the event.

Team Handbook and Team Business Plan.

Between the two, they can save you a lot of trouble later and make life a whole lot easier. Also consider putting a Chairman's Award submission together--you can't submit it electronically, and you aren't eligible to win the award, but it does help with Rookie All-Star and future Chairman's submissions. If you have a NASA Grant, I believe that having one of those submissions is also a requirement for that.

Our biggest rookie mistake:

We were so happy about just having it being able to drive around, and we had separate groups to develop and come up with ideas for separate parts of the bot. We ended up with a box on wheels with ball manipulators bolted to the side of it.

Basically, my advice, find a strategy that you guys think you should use, and design your robot to play for that strategy.

And design the robot as a whole, with everyone on the same page.

ask veteran teams for help

Don't be afraid to ask veteran teams for help! Last year was my team's rookie year and we had no clue what to do. Luckily there was a team that has been around for awhile in the next town over that could help us, and if there are no teams around you there is always Chief Delphi!

design the robot on CAD

To avoid problems where not everything is thought out before building and different groups being on different pages, it is always helpful to design the robot on CAD. Even if you only have little CAD experience, it can make all the difference when nobody thought about how attachment A might interfere with mounting manipulator B, and then all you have to do is fix the virtual problem by clicking and dragging before it becomes a real issue and the build is delayed due to lack of planning

don't take a bite bigger than you can chew

Also, In some games, it is better to do one important task very well rather than many tasks decently. You just might fill in a niche for a very good alliance that allows your team an opportunity to align with some experienced teams who have designed a robot to do everything well.

Pay close attention to penalties

Pay close attention to penalties as well. It is very important to make sure that your robot cannot commit any infractions that will be of detriment to your alliance, because many teams will pick up on that very quickly when scouting and this can usually lead to your team being left out of eliminations.

understand Gracious Professionalism

Make sure that everyone on your team understands what Gracious Professionalism (referred to as "GP" in many cases) means and how important it is. This is what sets FRC apart from other robotics competitions in my mind; the overall community spirit of teams all around the world working toward a common goal of inspiring leaders in science and technology while competing against and alongside each other to play a game. The FIRST community is held together by this common mission and the GP of everyone

Focus on sustainability

Make sure that you lay strong foundations for the team to continue in the future. Unfortunately, many teams are unable to continue being a part of FIRST due to lack of resources, so it is important to be aware of your teams ability to sustain yourselves into the future and to work very hard at making sure that your team can participate for years to come.

Keep a good attitude

This is a big part of the idea of Gracious Professionalism and if you can get the attitude down, then GP is a really easy thing to do. A good deal of why my team made eliminations our rookie year had a good deal to do with the impression we'd made on team 399, not how good we were on the field (we were actually pretty bad as far as our record went). The would have been absolutely right to have picked another team over us, one who was better suited to playing at that level, but instead they graciously allowed a rookie

enjoy what you do

Learn from what you do wrong, don't just dwell on it. It's not simply the number of trophies a team takes home or a winning record that makes a team successful, but whether you can overcome the challenges you face. If you and your teammates can come out of your first season with a feeling of having done something great, and a feeling of community and fellowship, even if you don't come home with "honor and glory", then that will be all the success your team will need.

Talk to people at competitions

I'd also encourage you to get the students on your team out and talking to people at competition if possible, whether that means taking shifts in the pit or whatnot. There are some great friendships to be made at these competitions, and it's hard to find them when you keep to yourself staring at a laptop all day. If you can't get out during the comp time, then at least get out to the social or just talk to teams you share a hotel with. A lot of my favorite experiences in this program have been meeting interesting people from all over

More than a robot

I know my suggestions are less logistical and more idealistic, but I'd hate to see a rookie team get so caught up in the logistics of the team that they don't even realize what makes this program so great

Read these papers

These will help get you started thinking with an engineering mindset and will set you ahead of many other teams right away making you more competitive. (There is always a very simple but extremely competitive way to play the game. You just have to find it.)
http://www.chiefdelphi.com/media/papers/2250
http://www.chiefdelphi.com/media/papers/2303
http://www.chiefdelphi.com/media/papers/2175
This should give you a general idea of a very talented team's season:
http://www.chiefdelphi.com/media/papers/2360

Oh, and this may help too:
http://www.chiefdelphi.com/media/papers/1469

find a close-by team

Try to find a close-by team that is willing to give advice. There is a lot to the culture you can pick up from another team, plus they will fill you in on things you need to know that aren't clear in the rules and official papers. (Last year I inspected several rookie teams that did not know to bring a cart to transport their robot from the pits to the field). If you don't have a team locally, find one somewhere else and Skype them every day or so. Discuss your plans and problems with them.

Be a "one trick pony"

Don't be too ambitious building your first robot. Find one thing in the competition you feel is important and that you can do well, and design your robot to do that job. Be a "one trick pony" and you will do well your first year.

Plan out your season.

Six weeks seems like a long time at the first, but every day not used to its fullest is a day you can't recover at the end.

Ask lots of questions

4. Ask lots of questions, and consider answers carefully.

come up with a scoring strategy

Analyze the game and come up with a scoring strategy, then build your robot to meet it.

Aim High!

Make your first-year's goal to win the Rookie All-Star Award. Get started on it NOW. That's more important than having the best robot on the field.

READ THE RULES!

Then read them again. Read them every day.

Build part of the field

Something that can really help, if you have the resources: Build part of the field so you can practice on it. Make sure you know the differences between the practice field and the official field; that can give a good strategy idea from time to time.

figure out what everyone else will be doing

The other thing is to try to figure out what everyone else will be doing. See, if everyone is building robots to shove whatsits into a goal, and there are also widgets on the field that nobody's really paying attention to, sometimes you may want to build a widget bot. Being the only widget robot on the field can be a real advantage when it comes to noontime Saturday and alliance selection.

Find Sponsors

Find them even if you already have some. Money is such a nice thing to have, especially come build season. Even if a business can only donate $50, it adds up. Can drives are also supposedly great fundraisers. Talk to local businesses and see what they can do to help out. Donating products is usually helpful as well. If a pizza store can't help with funding but can provide pizza for the team...that's one less meal to buy.

Competitions

Gather a few teammates and mentors and go one of those events. Your first event will be a lot less scary, and you'll be better prepared if you see what other teams have brought with them and what other teams are doing. If you don't have a chance to get to an event, look into watching one or two of the webcasts. You won't be able to see the pits or anything like that, but you can still get a general idea of what the competitions are like.

Robot bagging/transportation:

Read the rules carefully. Read them twice. Three times. Plan out your un-bag sessions wisely. Know how you're getting the robot to and from the events: will it fit in the back of a minivan? A truck (I don't recommend this - MI weather is rather sketchy, especially on your end of the state)? Will you be renting a U-haul? Know this *before* the week of the competition. Additionally, DON'T FORGET to pack safety glasses in a very easily accessible location. You won't be able to unload into the pit without them!

Show your Spirit
Polish your Image

Everything that the team does at an event reflects upon the team. Make sure that everybody associated with the team knows this. Be courteous and friendly, be social. Friendships can work wonders, and interacting with geeks that you haven't spent the past 6 weeks almost living with is a really fun experience. Additionally, try to avoid sitting in the stands looking bored (which I see a lot of rookie teams do). Get into the competition. If your team isn't playing, pick a team on the field and cheer for them. Cheer

have fun!

FIRST is truly what you make it. Welcome to the community, and I look forward to seeing your team.

Keep It Simple Students

Two very important and simple guidelines.....

1. Use the KISS method.

2. Decide to do ONE thing and do that one thing the best you can. Remember that you will be in an alliance and if you can do one thing better than others you will stand out from the crowd.

Do as much prototyping as you can

Do as much prototyping as you think you can fit in. If you can build something out of wood, drill guns and random stuff, and it works well, you have both a clear design (so everyone is on the same page), and a proven design (more so than a CAD model).

Paperwork

Paperwork for robot shipping is very important...if it is a bag-and-tag event, there is a special procedure to be followed but supposedly bag-and-tag is very popular. If it is a traditional [ie FedEx] event, paperwork is also really key: if your mentor/coach doesn't have the right papers on hand, your robot may not be delivered to or from the event.

consent forms

Make sure consent forms are filled out. We've had unhappy times running around the day of a regional trying to get late consent forms in....your team won't be allowed into the event without them. Have students fill out the online consent forms!! in STIMS.

Bumpers

our coach says that bumpers are the single most annoying thing about FRC. There are strict regulations as to how big bumpers can be, whether they can be in one piece or articulated, etc. At our regional last year a rookie team showed up and their bumpers weren't right..I think maybe they didn't HAVE bumpers. It was a big delay and nuisance to the team to get the bumpers fixed.

ask for help at your regional

Don't be afraid to ask for help at your regional. As you'll notice if you attend an event before yours, the pits are always filled with loudspeaker announcements for teams who need tools or parts. Most teams will take a huge amount of pride in helping another team, especially a rookie.

social aspect of competitions

Don't neglect the social aspect of competitions. It is always good policy to get familiar with as many teams as you can at an event. Last year we spent an hour in our hotel lobby chatting with a team who was actually from our area, comparing scouting data and such, and we've been so happy to partner with them in several things since.

scouting

If you have even one spare person whom you can assign to watch matches and take notes all day, do it. Scouting teams are usually >4 members but I've done it successfully alone for several years.
Even if you don't wind up 'needing' your scouting data [ie you don't get to pick alliance partners] it WILL come in handy. Before every match, I try to brief our drive team on what they can expect from their opponents and alliance partners. When possible, we also try to arrange a strategy beforehand, based on knowing the strongest teams on each alliance.

Know your own strengths

If your robot is a lot better at scoring than defense, tell your alliance partners! If your autonomous mode does best in a certain starting position, tell them that too. We have usually found that other teams are very willing to work with us to arrange the best strategy for everyone.

Learn as much as you can

I cannot stress one thing enough: Learn as much as you possibly can. Surf wikipedia. Talk to other teams. Read the forums. The more you know about **robotics** before you start building a **robot**, the less stressful it's going to be.

There's more ? ! ?

- That's a lot to consider, but there is quite likely more to do and learn. When you find out what that is, share it with the rest of us. Please?
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