MENTORING GUIDE

TABLE OF CONTENTS

1 INTRODUCTION

The purpose of this guide is to help develop an understanding of the mentoring process and associated relationships that should develop during the team's evolution. All team members can learn something through the process. A lot of what is written is plain old common sense, but our intent is to provide insights and tips to mentors/coaches to help them through the facilitation progression. We think you will find the necessary tools to introduce you and your team to the mentor philosophy, its goals, and the process:

A. Adults share simple concepts of team building and cooperation they have learned through job experiences as well as their knowledge of specific, perhaps complicated engineering expertise.

B. Mentors grow and learn new perspectives from the young minds brainstorming and working under their tutelage.

C. Team members learn technical and organizational skills well enough to be assigned some mentoring roles.

There is so much more than just a team feeling on a lot of the *FIRST* teams. It's hard to describe, but it's there. Many teams become extended "families" and the relationships become strong ones and lasting ones. Students and adults absorb knowledge from each other and grow through the guiding process, but he kids are not the only ones to benefit from the program. It's a total win experience.

It is important to remember that team members will face long hours and days working on the robot and awards submissions. Try to keep the atmosphere friendly and add laughter whenever possible and appropriate. The following sections provide a foundation for growing a *FIRST* team.

2 TRUST AND RESPECT

There is a lot at stake during every one of the competition stages, so it is important to develop an environment of trust and respect between all team members. The team must be able to rely on the premise that all team members are honest, respectful, and dependable. At the very first meeting, stress the point and start to develop this attitude among the team members.

Communication is a key component for building trust and respect. Let everyone know that their ideas are important and will receive consideration. Mention this often as the season progresses. Let the kids know that they will have a large part in building the team's robot once they have learned and practiced the necessary skills…...and follow through with your promises.

Many teams have team-building events and other activities prior to January so new team members can get to know everyone in a fun and non-chaotic environment. These activities can help make team members more comfortable and help start a good working relationship.

2.1 Adult/Student Relationships

It is important for every adult to remember that there are responsibilities that come with the adult/student relationship. Young people look up to people they trust and respect and will look to mentors as their role models, and they will closely watch the adults' actions and see their behavior as appropriate.

An adult may think that he or she is showing camaraderie and will fit in with a group of students by using the same offensive language the students use among their peers, and the reaction of the students may make the adult feel like he or she is part of the group. But what the adult is really "saying" is that inappropriate language is ok.

Some school districts have policies regarding adult and student interaction. The adult team leadership should understand these policies, how to enforce them, and make sure they communicate them to every adult working with the team. Prior to meeting with the kids, have a meeting with them to set expectations. This can give the adults an opportunity to ask questions they may not want to ask in front of the students, openly discuss topics such as diversity, and discuss ideas and potential problems about working with kids. If your school district has an individual who works with school/business partnerships, invite him/her to this meeting to help answer questions.

2.2 Gracious Professionalism

FIRST often uses this term, and it goes a long way to describing the program's intent. Woodie Flowers asks this question: "Why do FIRST folks talk so much about that phrase?" As a mentor and facilitator, you know that this is one of the most important concepts you can teach a young person ready to learn how to get along in the work world. At *FIRST*, we see team members helping team members, but we also see teams helping other teams. This is a real indicator that this concept is effective and productive. You may want to spend a good portion of time going over what Woodie says below.

"Obviously it would not make sense to endorse "asinine professionalism" or "gracious incompetence." It is, however, completely consistent with the *FIRST* spirit to encourage doing high quality, well informed work in a manner that leaves everyone feeling valued. Gracious professionalism seems to be a good descriptor for part of the ethos of *FIRST*. It is part of what makes FIRST different and wonderful.

Gracious professionalism has purposefully been left somewhat undefined because it can and should mean different things to each of us. We can, however, outline some of its possible meanings. Gracious attitudes and behaviors are win-win. Gracious folks respect others and let that respect show in their actions. Professionals possess special knowledge and are trusted by society to use that knowledge responsibly. Thus, gracious professionals make a valued contribution in a manner pleasing to others and to themselves.

In *FIRST*, one of the most straightforward interpretations of gracious professionalism is 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 are losers. No chest thumping barbarian tough talk, but no sticky sweet platitudes either. Knowledge, pride and empathy comfortably blended.

Understanding that gracious professionalism works is not rocket science. It is, however, missing in too many activities. At *FIRST*, it is alive and well. Please help us take care of it. In the long run, gracious professionalism is part of pursuing a meaningful life. If one becomes a professional, and uses knowledge in a gracious manner, everyone wins. One can add to society and enjoy the satisfaction of knowing that you have acted with integrity and sensitivity. That's good stuff!"

3 MENTORING GUIDE OBJECTIVES

Mentoring is an important part of the *FIRST* program and contributes in a large part to program success. The process often starts small with a coach or two and some students learning and teaching mechanical and engineering skills. If done correctly, this learning process builds and grows team members' self confidence as well as their knowledge. If the process has a good foundation and works properly, the adult team members come away with as much as the kids.

The following are a few objectives for this guide:

- Provide a user-friendly document that will make the mentoring process easier for veteran and rookie teams
- Provide a clear understanding of the mentor process and relationship
- Develop student and mentor reciprocal learning

4 MENTORING DEVELOPMENT

Mentoring is the process by which an experienced person provides advice, support, and encouragement to a less experienced person. Every adult on a *FIRST* team is a mentor simply because he or she leads through guidance and example. Kids can also learn mentoring skills.

4.1 The Concept

The mentors and students are equal and become united through a partnership. Each works collaboratively toward a mutual and beneficial goal. On a *FIRST* team, a mentor's goal should be to actively share his/her knowledge and experiences with the team to help foster intellectual growth. Provide students with opportunities to make choices, both good and bad.

4.2 Effective Mentor Goals and Objectives

An effective mentor demonstrates the value of success he or she has encountered during his/her career path and uses these skills and successes to share knowledge and values with team members. A successful mentoring program shows mentors/coaches helping each other discover ways of adapting instruction to reach every participant on the team. Successful mentoring can help optimize everyone's learning experiences by:

- Allowing and encouraging independent thought
- Opening communication within the team
- Fostering a reciprocal foundation of trust and respect
- Encouraging effective facilitation
- Promoting independent thought
- Developing roles within the team

5 COACHING THROUGH FACILITATION

Facilitation is a process through which a person helps a group complete its work and improve the way it works together. In other words, this person has the necessary knowledge, explains the process to the team members, guides and encourages them to contribute ideas, and in the mentoring spirit, enables the team to work together better.

5.1 Facilitating vs Teaching

As a facilitator, provide direction that supports accomplishing tasks and team success. Do this by helping the team stay focused on the jobs they must complete. The catch is, many mentors have trouble distinguishing the difference between teaching and facilitating. Here's the difference:

Teachers communicate the knowledge they have learned on a given subject to one or more people.

Facilitators enable communication within a group so that everyone contributes knowledge and experience toward the solution.

In a properly facilitated session, everyone should feel comfortable and empowered to contribute. The primary job of the facilitator is to help the group feel comfortable enough to offer suggestions during any part of the project without feeling stupid or incompetent. This will help achieve the best outcome for the team and the project.

5.2 Promote Independent Thought

The following will help you to promote independent thought on your team:

- Approach problems with an open mind
- Treat all ideas as equal
- Resist any impulse to judge ideas
- Capture ideas as stated
- Use creative problem solving strategies to move beyond conventional solutions.

5.3 Develop Roles Within the Team

Instead of just assigning roles, think of ways to accomplish this so that team members feel as though they have a part in the process. Talk about skill sets, projects and subprojects, sub teams, enjoyment, time constraints, and rules set by the school or *FIRST*

5.4 Foster Reciprocal Trust and Respect

The foundation for this type of relationship begins when coaches become approachable and available to students. Facilitate in such a way that the students feel very much a part of the "thinking, contributing, and doing" processes for the team. The mentor/student relationship is based on common goals and should continue to build on mutual trust and respect.

5.5 Know the Basic Facilitation Process

The process combines an understanding of the task, self, and group, with a set of interactive and quality tools to achieve group results. The following are good implements:

A. Make sure everyone understands why you are meeting.

B. Identify what it is you are going to accomplish and establish criteria for agreement. It may help to write it down so everyone stays focused on what "it" is. This can be a simple phrase on a flip chart.

C. Use brainstorming techniques to get input from everyone, and write down *all* ideas.

D. Weigh alternatives against objective criteria previously established. You can use various techniques for this and the technique might depend upon the circumstances. A good facilitator will be able to get the group to narrow down the ideas. Some common techniques are weighted voting, combining similar ideas, testing the feasibility of an idea, and group consensus.

E. Avoid the "we have always done it that way" mindset.

F. Write down any decisions and state what you want to implement.

G. Be sure to and ask if there is anyone who does not understand the solution/plan.

H. Implement the selected solution, and make sure what you put into practice meets the original intent.

6 MENTORS' ROLES AND RESPONSIBILITIES

Mentoring should result in learning and the concept should begin when the students and adults first come together. The roles of the mentor, students, and other team members change as they work together over a period of time. Ultimately, the relationship evolves into skill development, both technical and people-oriented, so he or she can widen the skill circle to include mentoring others.

SAFETY NOTE: It is important to remember that some team tasks which involve safety, such as working in a model shop, should always require direct adult supervision regardless of the expertise and ability of the student to mentor others.

6.1 Responsibilities

- Inspire the students in science and technology
- Motivate and engage students in the meaningful activities
- Create open communication within the team
- Facilitate instruction
- Maintain process focus
- Have the kids do as much work as possible
- Establish an environment conducive to open and honest communication
- Show trust in, and respect for, every team member and his/her ideas
- Encourage kids to take risks and invent
- Encourage accountability

6.2 Roles

- Confidant
- Supporter
- Coach
- Teacher
- Motivator
- Facilitator
- Sustainer

6.3 Tasks, Strategies, and Stress

Help team members clarify tasks and develop strategic plans for individual jobs. Helping them clearly understand the task list by defining them and their complexity, and showing their relationship to the timeline, will make it easier for team members to plan and work together toward successful job completion.

Try to watch for signs of serious stress among team members. This may be a time to intervene and ask if they need help or suggest that they take a break and clear their heads. If the opportunity presents itself, try to get them to laugh at the project, themselves, or you. It is amazing what hearty laughter can do to relax a ticking timeline.

7 STUDENTS' ROLES AND RESPONSIBILITIES

Some team members will quickly move through to a point where they can work independently and move on to taking on the role of mentoring others, while some may need direct support from an adult mentor for a longer period of time. It may take a while for some students to get to a point where they can work independently. Don't judge how quickly they move from one phase to the next. Keep in mind that everyone is an individual and comes from a different background, and everyone learns at a different rate. Celebrate and facilitate each person's accomplishments, both large and small.

The peak of the mentoring process occurs when team members develops skills, both technical and people-oriented, so he or she can widen the skill circle to include mentoring others. The following sections on roles and responsibilities are the basis for a student's learning and team commitment.

7.1 Roles

- Work to understand science and technology
- Commit to the project
- Be accountable for his/her part of the team
- Understand the engineering principles and process

7.2 Responsibilities

- Take individual responsibility
- Develop trust and respect for adult and student team members

- Be accountable for individual commitments
- Work to gain skills and knowledge
- Focus on completing directed tasks
- Assume leadership responsibilities whenever possible

8 SHIFTING ROLES AND GROWTH

During the mentoring and facilitating processes, students and other team members learn and assume more responsibility and the mentor/facilitator has done his job well when this shift occurs. Members of the team grow in knowledge and understanding and are able to teach and guide others on the team. We will use the word student in the broad sense to mean “apprentice” or “learner,” thus applying to students in school as well as other team members.

In certain areas, the mentor becomes a sustainer rather than a teacher and the role shifts and now allows the students and others to initiate and complete tasks. Refer below to the “Keep It Simple” and “Coaching Awareness” sections.

8.1 Mentors’ Shifting Roles

- Observe
- Sustain
- Facilitate
- Be ready to step in when needed

8.2 Students’ Shifting Roles

- Understand material
- Augment skills
- Prioritize work
- Complete tasks with a high level of independence

8.3 Transferring Ownership

The “learning and doing” progresses in four steps. The mentor starts out as “I do” and in certain areas, can finish as a sustaining “I watch.”

I Do	You Watch
I Do	You Help
You Do	I Help
You Do	I Watch

When transferring ownership to the student:

- Be sure he or she is fully prepared and knows the subject well.
- Provide encouragement and make sure he or she is comfortable and wants the shift to a mentoring capacity.
- Inform the rest of the participants what is happening regarding the shift. This will curb ideas that the new mentor is assuming a role not assigned.

8.3.1 Students as Mentors

Through mentoring and facilitation, students learn how to complete various tasks. As a result, the student has a clear understanding of the skills and is able to answer any questions relevant to them. This process results in more time for the mentor, now able to assume an sustaining observer role, and allows the "apprentice" to work as a mentor to other students.

This team evolvement not only builds trust and respect, but can also help prevent mentor burnout and other team members and students with project management experience. It also encourages new team members or underclassmen who may be unsure of their capabilities to join, participate, and add new life to the team.

8.3.2 Mentor's Role - Observer

Observer, be ready to step in when needed.

8.3.3 Student's Role - Mentor in Training

Pass information and technique to other team members.

9 FACILITATION TECHNIQUES

The following tips will start you looking into and using common sense techniques to bring out the best of each person, young and seasoned, on your team. You will notice that many of them simply bring out good manners and consideration.

9.1 Listen and Watch for Cues

Effective communication is key to team success. Mentors play a major role in establishing an environment conducive to good communication. He or she sets the stage by actively listening to contributions without judging and being conscious of verbal and non-verbal cues.

9.2 Be an Active Listener

1. Sense: Listen before speaking
2. Interpret: Evaluate what is being said
3. Check: Test your understanding of what was said through paraphrasing
4. Establish meaningful conversations with team members and never talk down to them
5. Attempt to identify with what the person is saying. Be understanding. Try to put yourself in his/her shoes.
6. Listen for the contribution that the person is trying to make

9.3 Look for Verbal and Non-verbal Cues

These signals are sometimes important in understanding communications and knowing whether you are getting through. Some things to look for include:

- Raising or lowering of voice
- Body positioning

- Rapid speech
- Raising eyebrows
- Tone of speech
- Person shifts in his seat
- Unfocused attitude

9.4 Listen and Ask

Resist doing most of the talking even if you know the correct answers. When communication is "one way" and the mentor/coach has all of the answers, the other team members will not feel valued. To break through this challenge, learn to be an active listener.

- Encourage open communication.
- Ask open-ended questions such as "what do you think" or "how do you think we should approach this?"
- Stay away from questions that require a simple yes or no answer.
- Don't jump in with your idea for the solution. Let the team member finish his/her thought.
- Take the time to make sure everyone understands
- Encourage them to ask questions when you see that something is not clear.
- Always ask if there is anyone who does not understand, and clarify discussions when there is a topic that some students don't "get" or there is a word used that has multiple meanings. The student may not have covered the topic in school yet.
- The effective mentor will pay close attention to what *and how* something is said. Try to eliminate frustration by letting the team member talk it out. You may agree to do this one-on-one if it would take too much team time.
- Try to diffuse team sparks by mollifying a somber, defensive, or explosive atmosphere. Sometimes just noticing and showing concern will do it, but one of the best ways is to inject some kind of humor into the situation. It's hard to resist a smile, pat on the back, silly walk, or wacky voice. SOMETIMES IT TAKES A CLOWN.

9.5 Provide Feedback –Positive, Objective, Constructive

Observe what the team members contribute and provide positive, objective, and constructive feedback to build confidence and help them improve. Help them understand that mentors provide feedback to help the team improve, and that it is about actions or work and is not a judgment of him/her as a person.

9.5.1 Be Sensitive

If there is a problem, provide constructive criticism immediately following the behavior if possible. Be sensitive to things that could embarrass, such as commenting in public.

- Be aware that not all people are receptive to feedback. Some view it as criticism and may be hurt and react defensively. The way you deliver the message will have an impact on the reaction.
- Be direct, treat the person with respect, and deliver positive and constructive comments. For some individuals and some situations, ask the team member if he or she would like to receive comments on his or her work. If he or she does, the session should be two-way, allowing him or her to ask questions and clarify the delivered message.

9.5.2 Be Safe

When there is a safety issue, give immediate feedback to your team members, even at the risk of embarrassing them. Take them aside later and explain that you care about what happens to them and that you were worried about their safety, so you had to speak up to prevent injury.

9.6 Coaching Awareness

Develop the following facilitation skills to help alleviate team stress and misunderstandings.

9.6.1 Clarify the Task:

The task may be a simple meeting or a complex set of jobs that will take weeks to complete. The team should understand how the task fits in with their goals and objectives. Clarify what is expected of the team without doing the work yourself…and provide a realistic deadline. Ask if everyone understands what is expected of each individual.

9.6.2 Know Yourself

Coaches must know themselves and how they impact the group, and that it is his/her role to explain the process. Facilitators do not need to be experts in the topic being discussed, but if they are, they must be careful not to lead the discussion to a preconceived outcome.

9.6.3 Know Your Group

Know the team members, their goals, and their differences to better understand the team and make a positive connection. This helps anticipate conflict and turn the experience into productive learning. Ask yourself questions such as, “Have I seen this behavior before?” By asking questions you will begin to notice the group dynamics within the team.

9.6.4 Prevent Group Paralysis*:*

Watch for the group having problems in achieving consensus. Allow time for discussion and be prepared to step in if the group cannot make decisions and has “group paralysis.” Knowing when to push the decision on the group, or to make it, is a skill that good mentors develop over time.

9.7 Coaching Tips

- **Unite the group**. If there is a problem within the team, allow the team to communicate its frustration, decide on a course of action, and then help them move forward.
- **Don’t take sides**. Keep conversations to facts not emotions. Don’t let things get personal.

- **Keep the Group Focused**. It is the facilitator's job to keep the team focused on the topic.
- **Always be an alert and active listener.**
- **Paraphrase what you hear from the others**, or get someone else to do it. This keeps communication open because they can correct or explain what you hear if it is not what they said.
- **Include everyone**. Bring quiet team members into the discussion and keep those who feel comfortable with communication from monopolizing the conversation.
- **Build on ideas.** Encourage people to build on ideas already been presented.
- **Respect all ideas:** Make sure everyone treats all brainstorming and ideas with respect. Allow people to disagree with or challenge an idea, but not to judge the individual.
- **Record ideas.** Document brainstorming ideas and decisions for future team reference.
- **Avoid re-hash.** Don't re-open finished discussions. Everyone should agree up front not to rehash unless all members of the team agree to do so.
- **Encourage laughter**

9.8 Keep It Simple

Simplicity of design is a key component to a successful outcome and student involvement.

- **Facilitate:** Make things simple and as easy as possible for the kids to understand. If the team doesn't understand, explain or demonstrate the concept in another way.
- **Demonstrate:** Challenge the kids to think ideas through in a constructive and positive way. Try as hard as you can to avoid using the words "can't be done" or "not possible."
- **Delegate:** Give the students the specifications they need, and help them turn the concept into reality. Be ready to help if necessary.
- **Do:** Unless absolutely unavoidable, students should work on each aspect of the project. If all members of the team share ownership, the team shares the responsibility and the work.

10 MENTORING TOOLS

The effective coach should be aware that all students learn differently. Use the tools below to help facilitate instruction and learning.

10.1 Language tools

Use a variety of approaches to get students to contribute to the conversation. These words and phrases will help facilitate the group, work with all learning styles, and encourage the team members to use logical thinking skills. These following will stimulate responses:

- Consider
- What would happen if?
- What do you think?

- How do you think we should approach this?
- How do you suppose?
- Think about what might make….
- Visualize
- Compare
- Close your eyes and picture…..

10.2 Learning Styles

When people use their senses, they take in information and they learn. Some people learn best by seeing something, others by hearing, and still others by hands-on activity. For many people it is a combination, but one style of learning probably dominates the others. It's important to understand the characteristics of these different styles to reach every person.

Visual

- Learns by watching demonstrations
- Has vivid imagination and visualizes in detail
- Needs description to help conquer goal
- Person is generally quiet by nature

Auditory

- Learns easily by instruction from others
- Finds that visualizations are hard to interpret
- Details are less important
- Enjoys talking and hear others talk

Kinesthetic

- Thrives on hands-on, direct involvement
- Remembers what was done, not was said or seen
- May speak with gestures and stand close to the speaker during conversations

10.3 Helpful Activities

Some teams have found the following activities helpful with forming and maintaining a successful team.

10.3.1 Create a Contract

A contract can be an effective tool to set expectations with everyone. Have everyone outline concise expectations and come to an understanding of what is expected of each member and the whole team. Have each person create a contract listing expectations of what students expect from mentors and what mentors expect from them.

10.3.2 Have a Team Building Night

Team Development is very important. Host a team building night to showcase talents and hobbies. Have students and mentors be prepared to share information about themselves in an informal atmosphere. Laughter builds camaraderie.

The following are good chances for all team members to get to know each other while beginning team building activities:

Karaoke night or Talent show

Pizza Party or Spaghetti Dinner

Game Night (Pictionary, Charades, Scattergories, etc.)

10.3.3 Learn About Tools

Early in the season when there is time to teach and practice, give the team instructions as to how to handle and care for tools. The sponsoring company may be a good source for tools and teaching about their safe operation and storage.

10.3.4 Create Project Maps

Project maps are detailed timelines. Creating a visual project map is helpful to lay out all responsibilities that your team members will need to accomplish.

10.3.5 Brainstorm

Each working session should begin with a brainstorm session for about 15-30 minutes to get your team in a creative mindset. Do not allow anyone to put down or squash any ideas. All ideas and contributions to the team are valid. Some of the methods below use familiar learning styles and will be good tools for taking in information and learning.

Mind-Mapping

Mind-mapping is a visual writing and note-taking brainstorming process that will help your team break through creative dry spells. If you have flip charts, use them. You may rather use sticky notes placed on a wall and separated into categories.

Cause-Effect Diagrams

Teams will brainstorm and then discuss and diagram the cause and effect of each situation you list. This is a helpful tool to use before the season begins.

Problem Identification and Multiple Solutions

Come up with a problem the team can solve using problem identification, which consists of identifying the problem and creating more than one solution to it. Ideas will pop and encourage creative team thinking.

Logic Trees

Logic trees are useful for brainstorming also. You can diagram vertically or horizontally, using boxes and arrows. Brainstorm for a solution, being sure to include sub-problems and solutions to each. Logic trees assist in handling of problems by:

- Facilitating clear definitions using a visual of the problem
- Clarifying contributing factors and their interactions and effects

- Partitioning problem solving into sub teams, without losing sight of the whole
- Improving communication between sub teams
- Assessing various risks, such as expertise, materials, and time constraints

10.4 Intervention

Most of the time, groups can resolve interpersonal problems on their own in time. Teams that resolve problems on their own learn to function independently, which indicates that coaches should avoid intervening as much as possible.

- Since time is short with *FIRST* projects, you may need to intervene and help with the problem or task or you may have to simply comment on some interpersonal issue.
- If the team asks for intervention on an interpersonal issue, ask what it has done about the problem before proceeding further. The team members may have taken no action as a team, and instead rely on mentor intervention rather than solving it on their own. They may simply need help identifying just what the problems is, or help in coming to the point where they are willing to address their problem(s) as a team.
- Be specific about what behaviors need changing and offer praise and support for any positive social behaviors.

10.5 Team Progress Evaluation

Have the adult mentors evaluate team progress on a periodic basis and compare it against the goals and objectives the team set for itself. Another approach is to have an adult mentor meeting each week to determine the next steps to problems resolution. Be sure to share this information with the whole team.

11 DIVERSITY IN TEAM RECRUITMENT

Embracing the differences in people gives a team another opportunity to learn and excel. On many teams, adults and students from very diverse backgrounds learn to have fun working together and develop excellent relationships with trust and mutual respect.

Diversity is a term that means different things to different people. Among adult mentors, it can offer team growth from the perspectives of gender, age, ethnicity, and professional background.

Many people think of diversity of gender and ethnic differences, but within a student body, there may be diversity in age or in the track of courses that the students are following, their socioeconomic background, and/or differences in physical and intellectual capabilities. The population of the school(s) in the team's *FIRST* partnership will naturally set some limits on the potential diversity on the team. A public school in a large city will have a very different population of students from that of a private boys' school, but you can find diversity in each.

11.1 Recruiting Kids

When recruiting students for your team, understand the population of the school and focus recruiting efforts on attracting a broad range of kids. Use *FIRST* videos that show a diverse population of students having fun. The *FIRST* Robotics Resource Center on the website, has color handouts showing a mixed group of participants having fun working as a team.

11.1.1 Selecting Recruiters

If adults from the corporation or university visit the school to recruit students, they should bring a diverse group of adults to do the recruiting if possible.

- Female students will likely be more interested if there is a female adult doing some of the talking
- Minority students will be more likely to consider the team if they see and hear adults from different ethnic backgrounds.
- Another approach is to have a mixed group of *FIRST* students do the recruiting.

11.1.2 Targeting the Population

Make sure that recruiting efforts will reach a good cross section of the school. It might seem like a great idea to recruit new students from the honor role or from the Science Club, but doing so automatically limits the population of potential applicants. Instead, recruit by targeting the entire school. Put posters up in the school and then hold a student assembly where there is a *FIRST* Robotics video and a demo. A related approach is to give an overview of *FIRST* in a series of classes where a cross section of students is enrolled.

11.1.3 Listing Selection Criteria

The number of students who wish to join the team will likely be more than the team can accommodate. Use a variety of criteria to select them. Some examples are:

- Instead of selecting the students with the highest grade point average, use a minimum grade point average such as 2.0 as one criterion in the selection process.
- Other criteria may be a minimum of 90% attendance and/or recommendations from teachers, etc.
- Select those who can commit to the meeting schedule with no conflicts with work or sports.
- Whatever the criteria, make sure they will not exclude the students you most want to attract to the team.

When there are more students who meet the minimum criteria for participation than there are spots on the team, it will be necessary to decide which of the students will be invited to participate. Be as objective as possible in the selection.

11.2 Recruiting Adults

Students from diverse backgrounds will initially be more comfortable if there are some adults with whom they can connect, so teams should try to engage a group of adults with the same diversity as the student population. Refer below for reasons teams should continually add new team members and hints for finding interesting recruits.

11.2 1 Potential Recruits

The following may be sources for recruiting a mixed group of adults for your team:

- Corporate or university Human Resource departments
- Many corporations have programs for newly hired technical professionals

- Local engineering chapters
    - The American Society of Mechanical Engineers (ASME)
    - The Society for Women Engineers (SWE)
    - The National Society of Black Engineers (NSBE)
    - The Society of Hispanic Professional Engineers (SHPE)

11.2.2 Fresh Ideas and Enthusiasm

New adults bring some level of variety to the team with their fresh ideas and enthusiasm and will:

- Add to the talent mix
- Help curb the “we’ve always done it that way” syndrome
- Help keep the repeaters from burning out.

RESOURCES

Web Sites

www.socialpsychology.org

www.teambuildersplus.com

www.vta.spcomm.uiuc.edu

www.strategiccomm.com

www.nwrel.org

www.chiefdelphi.com

www.mentors.net/index.html

Publications

Richard G. Weaver & John D. Farrell (1998) *Managers as Facilitators*

Jill Reilly (1992) *Mentorship*

Elaine Anselm, former mentor of FIRST Robotics Team #191 *A Handbook for X-Cats Adult Team Members*

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