

RVR Team 87

FIRST Robotics Team

2016- 2017 Handbook

Our Mission:

RV Robotics exists to inspire the students of Rancocas Valley Regional School district to pursue an interest and appreciation in science and technology. This is accomplished through a strong partnership between the schools, Lockheed Martin, and the community.

Our Vision:

To have a structure and organization that emphasizes a student lead team. The expectation is that students will contribute meaningfully to and accomplish all aspects of robotic construction and team operation and will leave the team with experiences and skills that will have a direct impact in their future success.

Our Motto:

“FIRST you go to Robotics, and then you can go ANYWHERE!”



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1 Welcome

Welcome to the RV Robotics Team. We think you will find your experiences here very rewarding and enjoyable. This guide is intended to give you an understanding of the program and your responsibilities as a team member. In the following pages you will find information relating to team history, selection process, team rules, team guidelines, organization at events, travel and many other aspects of our team.

Please review all the information very carefully. If you have any other questions that this guide has not covered, or if there are questions regarding any topic, do not hesitate to ask a coach.

You are encouraged to share this manual with your parents, and keep it handy for future reference. Students will be required to sign an acknowledgement that they have received and understand their expectations as outlined in this handbook.

2 History

Rancocas Valley Robotics Team 87 is located in one of the most pleasant places in the country, Mount Holly, NJ. It is the county seat of Burlington County, New Jersey and home to the oldest running courthouse in the United States.

Rancocas Valley Robotics was founded in 1997 by Wayne "Schmitty" Smith, a shop teacher at RV. Under Schmitty's tutelage, the team experienced the growing pains that any rookie team goes through. A few years later, at the start of the 2000/2001 school year, John Jeffries, an Earth science teacher, took leadership of the team. In the 2003/2004 school year, the team's fate seemed uncertain as Mr. Jeffries had to step down to pursue his education and to spend time with his growing family. After a display of team concern at a Board of Education meeting, Mr. Harvey Hans, an engineering teacher and Mr. Don Arter, a graphic arts teacher, took over as head advisors. In the 2006/2007 school year Mr. Arter had to step down as an advisor leaving Mr. Hans as the team's only advisor. Our main sponsor for most of the team's existence has been Lockheed Martin Maritime Systems and Sensors in Moorestown, NJ. They work to protect our country through programs such as the Aegis Weapons system, the Littoral Combat Ship, and the Coast Guard Deepwater Program. From our main sponsor we are assisted by George Marchant, Carl Hansen, and the members of the Advanced Technical Leadership Program (ATLP). Throughout the years we have had many adults to join forces with us and sacrifice their sanity, including Dave Carvin, Dave Baril, Mr. and Mrs. Hartsough, and Donna "Momma" Ambrozaitis.

FIRST, For Inspiration and Recognition of Science and Technology, was founded by Dean Kamen. The ideals of FIRST are best illustrated by this quote from their website: "The FIRST Robotics Competition is an exciting, multinational competition that teams professionals and young people to solve an engineering design problem in an intense and competitive way. The program is a life-changing, career-molding experience—and a lot of fun. In 2015 the competition will reach more than 71,000 high school students on over 3,000 teams in 110 competitions. Our teams come from Canada, Mexico, Australia, Israel, Brazil, Great Britain, Turkey, China, and almost every U.S. state. The competitions are high-tech spectator sporting events, the result of lots of focused brainstorming, real-world teamwork, dedicated mentoring, project timelines, and deadlines."

3 FIRST Robotics Calendar

As a member of the robotics team, you must understand the schedule and calendar of robotics activities. This team operates on a year round basis with most activities in the October/November and January to March time frames. This section will cover the activities in more detail. The summary of activities is:

Event	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Initial Selection Process												
Vex Challenge												
Robotics Academy												
Off Season Events												
Team Building Activities												
Competition Team Selection												
Kickoff												
Build Season												
Regional & District Competitions												
Championship Competition												
Fundraising												
Community Service												

3.1 Fall Team Activities

The RV Robotics Team has a fall phase of the team that operates from September to mid December. During the fall phase the members work on the new “Vex Challenge” program, participate in learning and team building opportunities and off season events associated with the FIRST Robotics Competition. This is the time period when your dedication, grades and team performance are monitored very closely to make sure they are up to the standards of the team. Close attention is paid to student’s attendance at mandatory and voluntary events such as fund raisers and local replay competition events. Robot maintenance and some training will take place during this time. This probationary period is also a time for students to experience team activities and to determine if this activity is for them. There will be an interview in December that will be a review of your activities to that point. At this time it will be determined if you have met the requirements to be a member of the FRC team. More specific information about this process is contained within this manual.

3.1.1 “VeX Challenge” Program

The new “VeX Challenge” program will be inspired by and incorporate the VeX robotics system put together by Radio Shack and the Vex Challenge put on by FIRST at the 2005 Championship

for the first time. The program is geared towards newer Robotics team members. Those members will perform the design and construction with the senior team members working as coaches. The goal is to start building the skills needed for the competition season and to have fun.

3.1.2 Robotics Academy

The RV Robotics academy is a way for students to understand some of the skills that they may need during their time on the team. The number of sessions and the topics change from year-to-year but often include:

- **An Introduction to Basic mechanical Concepts** – This class provides an introduction to some of the basic concepts for mechanical and physical portions of the robot. This includes material selection, torque, center of gravity, and gear ratios. This introduction is usually given in one session lasting 1 to 2 hours. Students should bring a calculator.
- **An Introduction to C Programming for the Robot** – This course provides students with an introduction to concepts in the C programming with emphasis on the concepts needed to create operator and autonomous code for our robot. No prior experience with programming is needed. This will be an interactive course taught over 2 or 3 sessions.
- **Basic Electronics, Wiring, and Sensors** – This course provides students with a basic understanding of the electronic components that make up the robot controller and interface. In addition, students will be taught how to wire and solder correctly. Finally, students will be given an introduction to the sensors that are used on the robot.
- **Fundraising** – This discussion introduces students to the various fundraising activities that RVR tries to perform. In addition, this discussion shows students methods they can use to approach local businesses to support our team.
- **Introduction to Computer Aided Design (CAD)** – This course provides a very quick introduction to CAD or Computer Aided Design. The basic concepts and tools will be shown to the students and some simple exercises will be performed.
- **Introduction to Graphics** – This course will provide a brief introduction to the graphics arts skills that we use in the robotics team. This includes discussion on the graphics we use on the robot, skills such as screen printing, and may involve brief introductions to digital photography and video.
- **Shop Safety Instruction** – This course provides an overview of the machines that the team uses in the woodshop. The goal is to give the students an understanding of how to operate the machines as well as provide them with the safety information they need to avoid accidents. Students will get hands on experience with the tools. If the course takes place after kickoff, the time will also be used to begin construction of any field components required for that season.

*Note: The Shop Safety class is **REQUIRED** for all students whether or not they are working on the robot directly. Our storage area is accessed through the wood shop and for safety reasons everyone must know the basics about the machines and their safety. Parent and Mentors who will be helping in the shop area are also strongly encouraged to attend the class.*

3.1.3 Off Season Events

RVR is lucky in that the Mid-Atlantic States have the most active off season FIRST calendar. As of 2009 there are at least 6 events in the spring and fall. RVR usually attends 1 or 2 events

in the fall, usually in late October and November. These competitions are based on the rules for the competition whose season just ended with little or no modification. There are number of reasons to attend these competitions. They are a good way to introduce prospective new students to the team and the competition. They are a chance for newer team members to take a turn at driving the robot and gain some much needed experience. They let our team member interact with friends they may have made on other teams. Finally, they are fun and attendance at a minimum of 1 of these events is mandatory to be considered for the travel team. This is covered in more detail in section 5. These competitions are usually a Saturday only. The school will provide transportation.

We may need to do minor repairs or enhancements to the robot prior to the competition. This will be scheduled as needed. In addition, a number of events are encouraging teams to modify previous years' robots to allow a prospective FIRST team to experience a competition. It will be up to the team if we wish to participate in this "lend-a-robot" program.

3.2 Build and Competition Season

Our real work, and the real fun occurs in January, February, and March when we get the new competition, build the robot and compete with it. The team usually attends 2 district events and 1 away trip, if money allows.

3.2.1 FIRST Robotics Kickoff

The real work for the competition team begins after the New Year with the FIRST Robotics Kickoff. This is a Saturday event, usually held the weekend following the end of the holiday period. The kickoff takes place in Manchester, NH, but is broadcast via NASA Satellite TV to a number of remote kickoff sites. RVR will either meet in the RV Performing Art Center or attend the Philadelphia or New Jersey remote kickoffs. All students on the team are **REQUIRED** to attend unless prior written notice has been given to Mr. Hans.

At Kickoff, a number of speakers will address the audience, new kit of parts items will be shown, and the game will be introduced. It is important that all students get to see the game introduction so that they understand how the game is played. In addition, the team will pick up the kit of parts and may attend some seminars at the remote kickoff. On the return ride from kickoff, the team will be to discuss the game and start to formulate a plan.

After returning from kickoff, one of the advisors will take the kit of parts inventory it. The inventory will be done before any students get to look at the kit parts so that any discrepancies can be sent back to FIRST. Students should visit the FIRST website and review the sections of the manual referring to the game and the field.

3.2.2 Breakfast Club

The Breakfast Club is a time for students to interact with the engineers and the advisors/mentors from RVRHS while working on the robot at shop. The Breakfast Club meets in E-133 on Saturday mornings at 8:00 am prior to working on the robot. The Breakfast Club usually starts in January and continues until the robot is shipped. Other dates may be added as needed to work on the FIRST project.

Transportation to the Breakfast Club location and the work site is the responsibility of the parents and the students.

Parents are welcome to stay and have breakfast and to join us to work on the robot. The team and the parents will pay for the cost of the breakfast. We will organize parents, students, engineers and coaches into groups to provide breakfast whenever possible.

Generally, after breakfast the team works at RVRHS location until 4:00 or 5:00 pm. Lunch is usually served. The parents will organize the lunch.

Phones are available for the students to call for rides if needed. Please make sure the arrangements for transportation have been worked out prior to attending.

Again, the Breakfast Club is very important in the growth of the team member. This is the best opportunity for the student to work on the robot and get to learn more about engineering. This is the focus of the program and every effort should be made to attend as often as possible.

3.2.3 Design Building Meetings

During January and February the team will design and build the robot. The robot will be based on the current year's game and may vary greatly from other robots before it. The robotics build season is short with a number of tasks to be accomplished. Because of that the team tends to work late into the night, 6 or 7 days a week.

During the initial week or two of the build season, the entire robotics team will meet as a group to understand the competition, develop game strategies, and develop a high level plan for the robot. After this, the sub teams will meet by themselves and do their own work. In the last two weeks of the season, the various teams building the robot and control systems will get together to integrate all the pieces onto a single robot and address any issues that develop. In the last week, the entire team will come together to complete all the final tasks and ship the robot. At the point we should be able to practice and test the robot.

After the robot ships, we will do final preparations for the competition and be ready for our first regional.

3.2.3.1 Robotic Construction

Students will complete "most" robotic construction. A variety of engineers will assist with their knowledge and skills. This concept supports our team philosophy of a student lead organization and a team built robot, offering a rewarding experience in science, math, and technology. In turn, **robotic construction may not be accomplished anywhere other than RVRHS lab areas.**

The only exception to this rule will be professional welding or machining that is needed and work that is done at a robotics event or competition. Advisors will not work on the robot without students present whenever possible.

3.2.3.2 Design Review and Stakeholders Presentation

We have a number of people who are interest in our progress and want to help with our design. This includes the RVRHS Superintendent, Lockheed Martin management, and our Board of Education. To keep them apprised of our progress and to get an independent opinion on our robot's design, we will hold a design review for those VIPs. The design review will give the student leads on each team a chance to present their progress to our VIPs. In addition, we will demonstrate the robot, parts of the robot, or working prototypes that we have available.

This event will take place in the 3rd or 4th week of the build season at Lockheed Martin and all team members are required to attend. This is a professional CDR event where all team members are professionally dressed.

3.2.4 Regional Events:

A regional event may be close or a distance away. Which regional events we attend is dependant upon location and timing of the events. Usually we do two local events and one at locations where we can best showcase our team and are exposed to a variety of quality robots. Most regional events follow a set pattern:

Wednesday: This is the day before the competition starts and the day on which we will travel. Depending on arrival time we try to schedule in tours, sightseeing or other team events. Some evening activities may be planned depending on our location and time of arrival.

Prior to our arrival, all students will be given a schedule that outlines their responsibilities every hour of the day. All students are expected to follow this schedule as closely as possible. This should be kept with them at all times.

Thursday: The drive team and some of the pit crew arrive at the event early to set up the pits, unpack the robot and start the robot inspection process. The main team will have breakfast together in a private dining room at the hotel, if available. The main team will stay at the hotel using the time for a study period. The main team arrives at the venue before noon.

When the team arrives it starts the competitive assessment process, locates a place in the stands, and walks around getting to know the other teams by trading buttons with them.

Usually our robot will practice two times during the afternoon. While waiting for our robot, the photo team is taking pictures of each robot, and the competitive assessment team is reviewing the performance of the other robots. Usually the day ends at 5:00pm. The drive team and pit crew may be required to stay and work on the robot until the pit closes.

The remainder of the team will go to dinner as a group if possible. When dinner is done the team will return to the hotel depending on time. A meeting is usually held within the hotel in a meeting room at about 8:00pm. Room check is at 11:00pm.

Friday: In the morning the team will have breakfast together. The entire team will arrive at the competition as soon as the venue is open, typically 8:00am. The main team will locate a place in the stands, while the photo team and competitive assessment works on their assignments. The video team will prepare to film each match and replay it at the fifth quarter (the debriefing after the match has concluded) to review the performance and strategy. We may have as many as four or five seeding matches on Friday.

Saturday morning the pits open up at 8:00am. Our team would have had breakfast earlier that morning. Upon entering our team again locates a place in the stands. Opening ceremonies start at 9:00am with the final seeding matches following. Depending on the format of the competition the finals occur in the early afternoon. The format of these finals varies from year to year.

At the conclusion of the competition there is an award ceremony where the remaining trophies are passed out. When this is complete the pit crew and drivers pack up the robot for shipping back to the school. This is usually around 5:00pm. Due to the distance and the cost of transportation we may stay Saturday evening. Dinner will be at a convenient location.

Sunday (if needed) morning we may be leaving early depending on transportation availability.

A local/district event will be formatted in a similar way with the exception of the events usually take place on Friday Night, Saturday and Sunday. These events we travel to and from each day.

3.2.5 CHAMPIONSHIP EVENT:

The championship event is very similar to a regional event in many ways but on a larger scale. There will be teams from all over the World.

Wednesday we try to arrive very early in the event city. After proceeding to the hotel to drop off our luggage we typically spend the majority and remainder of the day at the event complex. Students are free to explore. As always students will travel in groups at all times. Students are expected to be back at the hotel at the predetermined time for a team meeting.

Thursday morning we have a group breakfast and all proceed to the event. The pit crew and drivers will set up the pit and prepare the robot for inspection. Button trading, scouting involving the photo and video teams and other specific events occur throughout the day. We will have two practice matches spread during the day. All team members are required to stay at the event and with the team until released by the coaches.

We will provide a refreshment station for our team. Team members will be able to get drinks and snacks there at no cost. Lunch is available from several vendors for a fee.

If the practice rounds finish early enough students will be released to go to local activities. All team members will be required to be back at the hotel at the pre-determined time. Please allow enough time for transportation. There will be a team meeting at a specified location and time. Typically we have a meeting every evening to recap the events of the day.

Friday will start with opening ceremonies in the main arena. The seeding matches will follow this spectacular event. We will usually get three or four matches that are spread throughout the day. We will pass out the newspapers and other items as planned.

Friday is also the day when the judges will make their rounds to each team. There will be two Communications students in the pits at all times. This is the last opportunity to be proactive regarding the Chairman's Award. Every effort must be made to show all the great things our team has done.

The team will be dismissed to go to local attractions if time allows. The scouting team will meet back at the hotel to complete competitive assessment materials in preparation for the competition on Saturday.

Students will be required to be back at the hotel at the pre-determined time. Please allow enough time for transportation. There will be a team meeting at a specified location and time.

Saturday: After breakfast as a group, we will proceed to the competition as soon as the pits open. At 9:00am there will be another opening ceremony. You will not want to miss this event. We will sit together as a team. The seeding rounds continue until about noon. Depending on the configuration of the competition, the finals will be held in the afternoon.

Following the last matches there is a 1 to 2 hour break before the award ceremony starts. This ceremony takes about 1½ hours. The team will sit together for the duration of the ceremonies. Following the last award FIRST will provide an entertainment spectacular that is always a treat to see. You will not want to miss this.

There will be a team party following the awards that will take place in the event center. You will need some type of entrance pass; this varies from year to year. At this party there will be food and sidewalk entertainment. You will be required to be back at the hotel at the pre-determined time. Please allow enough time for transportation. There will be a team meeting at a specified location and time.

Sunday: What we do will depend on arrangements, funds and transportation. This arrangement will greatly depend on student fundraising activities. There will be an opportunity to help plan additional arrangements as soon as details are released by the FIRST organization.

3.2.5.1 Championship Set-up:

The setup of the championships varies each year, but usually takes place at the Edward Jones Dome, St. Louis, MO. Generally there is a large central playing field where FIRST will host the opening ceremonies, the Lego League Work Championship and the final matches.

In addition there will be four division fields around the main field. The pit area is housed in a separate facility and may require a 10-15 minute walk for spectators.. Within the pit facility each team will have a pit space that many be arranges numerically and by division. The pit area will hold over 300 teams and the team members associated. This event is expanding into additional venues in St. Louis and will allow for more teams to attend in the coming years..

3.2.6 Year Round Activities

3.2.7 Team Building

Students and mentors on the RV Robotics team will spend a large amount of time together during the build and competition season. For the team to work most effectively and with the least amount friction, we need to be a real team. That means that during the fall, the team will participate in team building exercises. These may be dedicated sessions, fun excursions, or may be exercise before meetings to loosen everyone up. All students and mentors are strongly urged to participate in these activities.

3.2.8 Fundraising

All students are “HIGHLY ENCOURAGED” to participate in TEAM fundraising activities. The funds raised are typically used for robot building costs, robot shipping as well as scholarships, and other TEAM expenses. This would include all costs other than student travel. These funds can be used to supplement student travel cost at the discretion of the team advisor.

Every student has an individual fund raising account maintained by the coaches. Profits made from individual fund raisers (typically everything other than Battle of the Bands and restaurant nights out) are accumulated in these accounts and spent for travel expenses with the team. In the event a student leaves the team the travel account is forfeited and is absorbed in the general treasury of the team.

Car Washes- Typically the team has 1-3 car wash fundraisers through the year. These are held at various locations in the area. All members are expected to participate in these events and profits are divided amongst the participants’ individual accounts.

Battle of the Bands/RoboAid- This fundraising activity takes place 2 times a year; one in the fall and one in late spring. This is a major fundraising activity that requires **ALL** members’ participation. Students will be given 10 tickets for each show and are **REQUIRED** to sell them. Students who either are unwilling or unable to sell their share of tickets will be fined through the school system. This fundraiser is mandatory and is a requirement to be a student in good standing at school and within the Robotics Team structure.

Other fundraisers may include Chick-fil-A spirit nights, Applebee’s Flapjack Breakfast, giftwrapping, and other activities deemed financially sound. **All fundraisers must meet the criteria of having little or no initial outlay and having reasonable profit for the time expended.** The fundraising committee is always open to suggestions of ways to earn money for the team. Please contact an advisor with your ideas

3.2.9 Community Service

The RV Robotics team could not exist without the support of our community. In an effort to show the community that we appreciate their support and to let the people know that the RV Robotics Team exists, we participate in community service activities.

These activities may be incorporated in our fundraising activities or other events, such as running a canned food drive during our Battle of the Bands event or involvement in activities such as Junior Diabetes Foundation work. They may involve spreading the word about FIRST and its programs by taking our Robot to other high schools to encourage them to start teams or mentoring local Lego League teams. It could also be something unrelated to FIRST that we do as a team or individuals such as Habitat for Humanity, a walk for cancer research or adopt-a-highway.

4 Team Organization

The lead advisor/faculty member, Mr. Hans, and a lead engineer from Lockheed Martin's ATLP program run the team. These people are responsible for ensuring that all the students have a successful, fun, and safe experience on the RV Robotics team. In addition, these individuals are responsible for the success of the program to the RVRHS administration and Board of Education as well as Lockheed Martin management.

The RV Robotics Team is made of several sub teams, all of which are required to get the FIRST project completed. By dividing into specialized groups students are able to focus on specific aspects of the project. The teams are described in the following sections and can be seen in the organization chart at the end of this section.

Teams are lead by one or more mentors and a student lead. The student lead will generally be a senior team member, a returning team member with at least 1 year experience but generally 2 years, that has applied for the position during the prior spring season. Appointments are made at the end of the year party.

The role of the mentor is to provide advice and guidance to the team, how they plan, work, and design, as well as instructions on how to accomplish tasks and use tools or machines. The mentors should not be building the robot but may assist in building certain pieces that require more skill or experience but only with the student help with the goal of showing the student how to complete the task so that if the skill or part is needed again the students are ready to do the work. The mentors are also responsible for making sure that all students are involved in the team's activities and that new or inexperienced students are taught the skills necessary for them to be productive members of the team.

The role of the student lead is to ensure that all of the team's work gets done by the deadlines laid out. Student leads along with the mentor will have final say when there are differing opinions on how to design something or what needs to get done. The student leads should work to resolve the issues if possible before getting the mentors involved. They are also responsible for ensuring that all students are assigned to tasks. If there are students who are not being used or refuse to do the work assigned to them, the student lead should inform the mentors.

Remember, that the student lead is responsible to the mentors for the success of the team, but it is up to all the students on the team to work together to ensure that team succeeds. Finally, student leads will be responsible for putting together their team's portion of the design review package and will need to present it, or designate someone to present it for them.

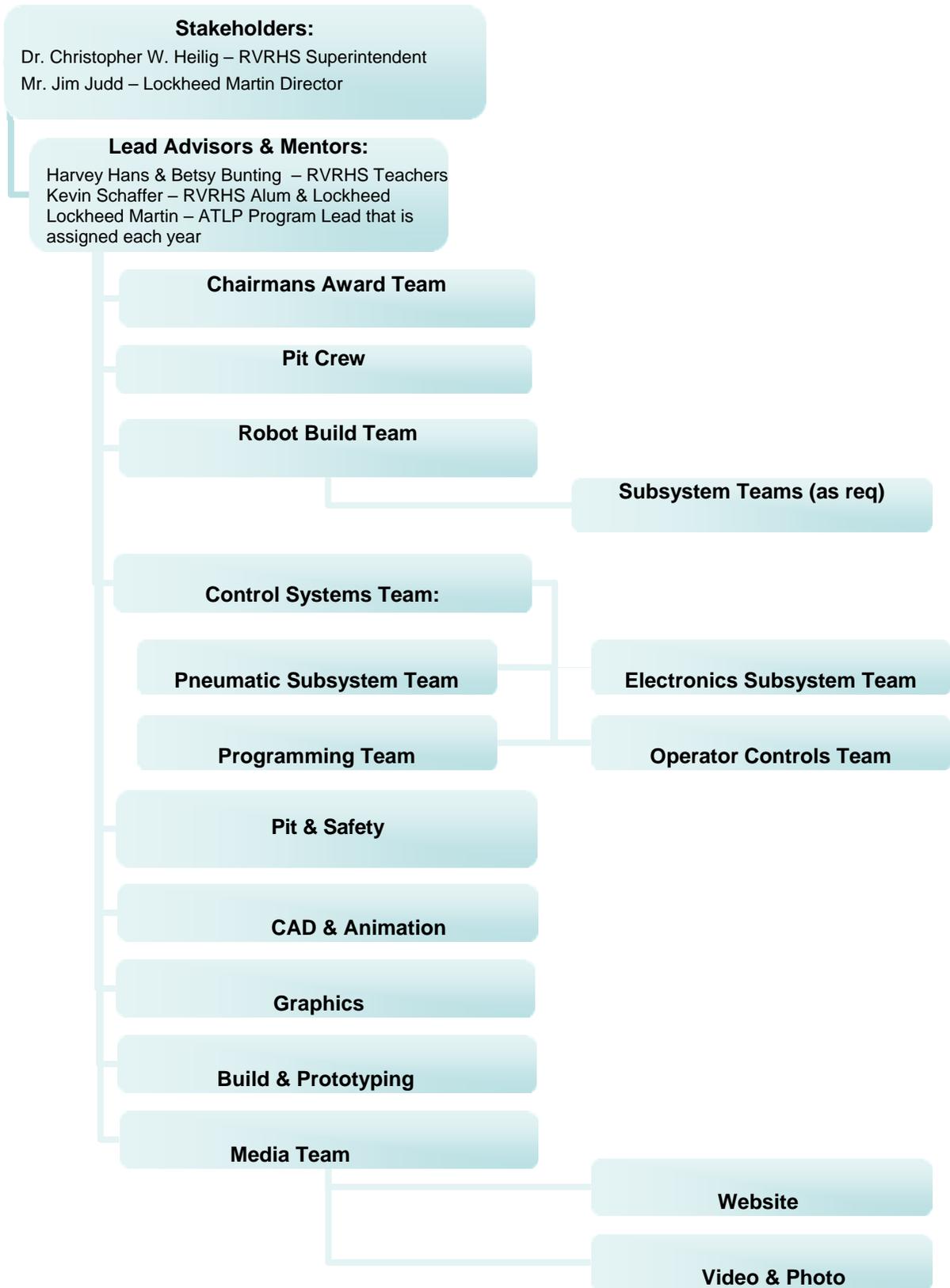


Figure 3.2-1 - Team 87 Organizational Chart

4.1.1 Chairman's Team:

The Chairman's Award is the greatest honor in the FIRST competition. The award is given to the team that best exemplifies the ideals of FIRST. To exemplify FIRST a team must show community involvement, demonstrate their partnership, inspire other teams, act as a role model and be of service to the community of FIRST.

To earn this award the team must demonstrate all aspects of their team by the creation of a Chairman's submission in the form of a written submission. There are very specific criteria for this submission as well as a specific due date.

This sub team is made up of students that are interested in documenting our team's efforts in the form of a submission. This submission can take on many forms. Coordination with the other sub groups is essential for the success of the project. The resulting document is a chronicle of our team's efforts.

This team reports directly to Mr. Hans.

4.1.2 Pit Crew:

The Pit Crew has several functions depending on what stage of the competition we are in. In the fall they are responsible for maintaining current robot and tools. Once the competition starts the crew creates the playing field to based specific directions and blueprints provided by FIRST. Once this is completed they assist in the development of the robot and operate the pit area at the competitions. A major responsibility is the preventive maintenance and repair of the robot at the competition.

This team reports to Mr. Hans during the off-season and an ATLP member during the build season

4.1.3 Build Crew:

This team does the actual assembly of the machine during the build phase. The jobs vary depending on the direction of the current years' robot and the abilities of the students. Normally this group dissolves into the Drive and Pit Teams once competition starts.

Depending on the complexity of the robot design, this team may divide into multiple sub teams. Sub teams will be based on the major components of the robot. Each major component as well as the drive train and chassis would have a separate sub team. This division will not be known until a week or two into the build season.

This team reports to Mr. Hans and an ATLP member

4.1.4 Control Systems Team:

This team is responsible for the control systems on the robot. This consists of the electronics subsystem, pneumatic subsystem, operator controls and programming. Each of these areas acts as a sub team.

- **Electronics Subsystem Team** – This team creates the electronics panel on the robot. They also wire all the sensors and motors used on the robot.
- **Pneumatic Subsystem Team** – This team handles the entire pneumatics system up to the actuators which are chosen by the build crew. This team ensures that all components are hooked up correctly, there are no air leaks, and that the system complies with the rules provided by FIRST.

- **Operator Controls Team** – This team is in charge of design and construction of the operator control interface on the robot. The controls should match what the drive team is comfortable with. This team will not program the operator controls but will provide the programming team with the requirements for what the controls should operate.
- **Programming Team** – This team develops the code for the autonomous and operator controlled functions of the robot. The team learns the C++ necessary to do the job and spends time working with the build crew and drive team making the robot play the game well.

This team reports to an ATLP member

4.1.5 Awards, Rules, and Construction Finance Team

This team is responsible for understanding the rules provided by FIRST in the competition manual. This team will be made up of members of each of the other teams. In addition to the rules, this team will also be responsible for understanding the dates for build/competition season, and the various awards. While this team may not submit the entries for all the awards, they will help the other teams understand the process and timeline for applying for the award. Members of this team will be responsible for reviewing the FIRST website for team updates and responses on the question and answer system. They will communicate these additions to the advisors and sub teams.

In addition, this team will be responsible for the finance aspects of the robot construction. They will take requests for parts and ensure that each sub team gets the parts they need. All purchases will be made only after being reviewed by Mr. Marchant. This team will track all the parts and will use this information to create the Bill of Materials used during Robot Inspection.

This team reports to an ATLP member

4.1.6 CAD & Animation Team:

The Animation Team uses a software program called 3D Max to create a 30 second animation of our robot playing the current game. Team members will need to be enrolled in a special class to learn the software. This class is offered by permission only. The team members must also have a computer at home to work on the project.

This team reports to Mr. Hans.

4.1.7 Drive Team:

The Drive Team consists of a primary and secondary driver and a human player. The primary drive drives the robot base. All other functions for primary and secondary drivers will be determined by the Operator Controls team. A competitive selection process using several robots from previous years selects the drive team. Students interested in becoming drivers should practice as much as possible to develop their skills. There is a main team and a back-up crew usually made up of rookie drivers.

The drive team is required to stay with the robot a majority of the time at the competitions. They will also arrive early and stay late to practice at the competitions. This group must interact with the Scouting Team and the Pit Crew.

This team reports to an ATLP member.

4.1.8 Scouting Team:

The Scouting team is formed prior to the competition. Students on this team will develop materials and methods to assess the competition giving our team as much advantage as possible. The collection of data and the analysis of the information will assist our team in all phases of the competition. The team is also responsible for the creation of the competitive assessment book working closely with the photo team.

Prior to competitions, this team will generate a scouting worksheet and may do preliminary evaluations based on data from other regionals or available on the Internet. At the competition this team will be responsible for scouting. They will divide the scouting up among the team members present. The team will also be responsible for collating the data and presenting it to the drive and pit teams on Friday afternoon. The team will hold a follow up meeting with the drive and pit teams just prior to alliance selection to discuss any changes since Friday afternoon. This team will then provide the list of potential partners to the team member going on to the field for the alliance selections.

The scouting team reports to Mr. Hans.

4.1.9 Marketing/Spirit Crew:

The Marketing/Spirit Crew is formed in preparation for the competitions and team activities. At the competitions we show support for our team and other teams by cheering and other activities. Showing spirit at the competitions is very important. The Crew develops the cheers and organizes the development of our “unique” spirit activities.

At the competitions we also do special activities that allow us to bond and make friends with other teams, a very important aspect of our team.

This team reports to Hans.

4.1.10 Media Team:

The Communications Team works to hone interviewing skills and presentations. They often speak directly to groups, judges and the media. At competitions they are stationed outside the pit area to greet other team members and present our image to the public.

This team will submit press releases and articles to the local news on a monthly basis. They will take and archive photos of the events of the season. In this roll, the team will be responsible for working with the RVRHS publicity person to ensure that we get the word out about FIRST Robotics.

Subteams:

- **The Web subteam** – develops many sections of our website www.rvr87.com. Members of this team need to have internet access at home and have or be willing to learn basic HTML. .
- **The Video Subteam** – There are two focuses of the video subteam. The first focus is to create a video that partner with the Chairman’s document. Usually this five to seven minute video is done in a creative way to support the information presented in the chairman’s document and which can be used for team publicity.

The second focus is that of analysis of our robot and its performance. The video team will record all the activity of our robot during practices and all matches. This video will be reviewed by the Drive Team and Build Crews immediately at the conclusion of the

activity at a designated location. The information gathered will allow the team to analyze the performance as well as strategies used to play the game.

The students on this team should have an interest in using the video camera and editing using computer software.

This team reports to Mr. Hans

5 Becoming, and Staying, a Team Member

Qualifications to be a Team member are important to ensure the goals and objectives of the team are accomplished with quality and efficiency. There are minimum qualifications to be eligible for the Club / Team.

Note: All selected students are part of the Vex team for the first semester. During the second semester students will be selected to be part of the FIRST team based on their experience and involvement during the first part of the year.

What makes a good team member? The criteria below are some of the attributes that are looked at during the selection process.

5.1 Application Process

Each student is required to complete an application on-line by the cutoff date. The time lines and directions for the application are very specific. Care should be taken to complete the application in a timely manner. The student response portion should be composed with care.

The parent section is very important. Take care to fill out the form online in a timely manner. If there is a language barrier the student may translate for the parent. Student should indicate that it is translated in the note area of the document.

5.1.1 Criteria for Membership on RV Robotics FIRST Team

1) Members must maintain academic eligibility as per school policy -Periodically through the year the roster will be checked with the main office for compliance. Positive learning habits are related to study skills, classroom assignments, grades, classroom, and school involvement. A student's current grades and past achievements are powerful statements about his or her learning habits.

Dropping grades and failure to meet eligibility requirements may jeopardize your spot on the team. It is the responsibility of each student to maintain their own academic, discipline and attendance eligibility status at the school. Any student payments made towards trips become non-refundable, once vendors are paid, even if a student becomes ineligible to travel or changes their mind.

2) Members must be involved in all fundraisers for their travel expenses (if they wish to offset the cost of team travel) - Fundraising activities occur throughout the year and include coca-cola sales, car washes, Scrip Sales and others. Each member will have an individual team account to keep track of their fund raising.

3) Members must perform 8 hrs of community service by mid December - This service must be approved and registered with the CS director. The director will keep a log book of all community service for members. Community service is defined as activities performed without pay for the good of others in the school or community. If accomplished on their own instead of with the team's CS project, members must produce a note prior to mid-December.

- 4) Members must attend the after-school meetings and specific team functions-**
Attendance and punctuality are indicators of a student's commitment to their education and future. Members are required to attend all pre-season meetings and a minimum of 2 days a week during our 5 day work week, 3 days (including Saturday) on a 6 day work week, and 4 work days (including a Saturday or Sunday) on a 7 day work week. During a weekday attendance is from 2:45 until at least 5:00pm. Saturdays or Sundays start at 9:00am for all members and attendance is expected to be until at least 3:00pm. A team member needs to be available and ready to participate as much as possible. When asked to participate, establishing a record of dependability and punctuality is essential to team organization and efficiency.
- 5) Parents of members are expected to participate in team activities and help in team operations –** As with any strong organization, RV Robotics cannot exist without the support and caring of our respective families. Parents are expected to help support fundraising activities, provide food during the build season, and help fill our cheering section at events.
- 6) Members will take a course or workshop related to robotics per committee approval- either curricular or extra curricular –** Most important of these is the shop safety orientation. No member can participate in shop or pit activities without taking this orientation. More detail on the workshops can be found in the Fall Activities section.
- 7) Members must attend meetings/competitions labeled as REQUIRED –** A small number of meetings during the year (pre-season) will be labeled as required. These are the Shop Safety class, (1) pre-season competition, both local competitions on Saturday and Sunday, and Kickoff. Students must attend these events. Students that do not attend these events will no longer be considered a member of the team. There are exceptions to every rule and will be evaluated on a case by case basis.
- 8) Demonstration of Appropriate Behavior –** The RV Robotics Team is a unique team of students and adults. We all rely on each other for the success of the group. Everyone is expected to bring the best of their abilities to the group. The competition each year is both expensive and time consuming and it is expected that all involved will behave as motivated young adults with the greatest regard for others and integrity.
 - a) Consistent Demonstration of Good Judgment and Positive Behavior:** Each team member is an ambassador of our team. Team members need to be role models for other students to emulate and respect. Solid behavior choices should to be demonstrated at all times, in and out of school activities.
 - b) Ability to Commit to a Project:** Starting a project and following it through to the end is critical to team performance. Team members need to dedicate themselves and not to get side tracked or discouraged. Your word is very important. Don't take responsibility you can't perform and ask for help if you are having problems with a project. There is no excuse for a broken promise in this project.
 - c) Ability to Work Both Independently and as a Team Member:** Being able to be a team player, doing what is needed for the team is an asset to all. However, working independently with little or no direction shows dedication and willingness to learn.
 - d) Interest in Science, Technology, Robotics and Related Fields:** The team member needs to have a genuine interest and an overall goal related to these fields of study. Activities, classes and career choices demonstrate this. Note: many skills outside robot construction are needed for this team. Those include: finance, project management, graphics arts, Photography and video production, communications/publicity, and computer animation.
 - e) Demonstration of Honesty and Integrity:** Honesty and integrity are looked upon as important attributes of a quality person.

- f) **Time to Spend on Activities** – This team requires many hours of a student’s free time. Careful planning and scheduling may be required to stay actively involved. In some cases, choices as to other activities may need to be made.

9) Financial Obligations: Students who travel will be expected to cover a portion of the travel costs that is not covered by fundraising. Students are expected to pay for the trips before traveling. In extenuating circumstances, the team may extend loans to families. Students and families must fulfill all prior year financial obligations to the team prior to the “travel team process” in mid-December. Members who have outstanding debts to the team or who have fines transferred to their school account from the team’s account will not be eligible for the current year’s travel team. Also note, that any unpaid obligations at the end of the school year will be reported to the school administration and based on school policy could result in loss of student privileges and if unpaid senior year will prevent students from graduating.

5.2 Selection Process

Selecting a team is a very difficult task for the coaches. Being a member on the team the previous year is no guarantee of a place the next year.

The process starts with the application. During the month of September applications are available through the team’s school activities page. Advertisement and recruiting for the applications is done via the announcements, teachers, word of mouth and postings in the locker areas of the school. **The application time period ends at a late date in September.**

All applications are due on or before the published date and time advertised. Late applications will not be accepted. All applications including the email verification and parent form must be completed by the posted due date.

5.2.1 Application Review Process:

All applications are reviewed for missing or inaccurate information. The applicant is contacted as needed to provide the data that is missing.

A review is conducted of the student’s records in the office. Data on absences, tardy and referrals is gathered and noted on the application.

5.2.2 Interview Process:

All applicants are scheduled for an interview to be held after school hours. At this five to ten minute interview the student has a chance to meet the current coaches and answer questions regarding their skills, talents and interests.

5.2.3 Final Selection Process:

The coaches and a committee of senior team members look at all applicants and build a team that will accomplish the goals of the team. Hard decisions may have to be made. The final selection will be the best effort at making a team that will represent the school and Lockheed Martin Maritime Sensors & Systems in the FIRST competition.

5.3 RV Robotics FIRST Team

Students successfully completing the fall phase will be placed on the official team after completing an interview in mid December. The placement on the official team will run until

the end of the school year unless situations arise that would put a team member's status in jeopardy.

It is during this period that team leadership will evaluate the abilities of members for placement in positions such as drivers, pit crew, etc. Positions are subject to change according to the needs of the team and performance of the members.

All team members must reapply to the team each year. Placement on the team is not automatic because of experience.

5.3.1 Participation

The FIRST Team requires many hours beyond the normal school day. All team members are required to participate in after school workshops, events and other team activities unless a valid reason for absence is provided. Usually the team meets school days during the fall semester from 2:30pm to 4:00pm. Some meeting may take place in the evenings if they require the support of our Lockheed Engineers and community mentors, especially during the build season. These are mandatory after-school meetings that focus on team building, robotics educational opportunities and sub group work on a variety of tasks.

A formal roll call will be taken during meetings and other activities through the turnstile portion of Genesis. It is understandable that team members may be bound to other extra-curricular activities, such as other teams or clubs, but it is expected that the necessary amount of time be spent with Robotics.

Students that take active and productive roles in the team will be rewarded with leadership responsibilities. Those who are lazy, unproductive, and lack the dedication to attend all or most meetings and activities will not be entrusted with the same kinds of responsibilities. If a team member wishes to do something important, they must first show that they will follow through to the end and not leave tasks unfinished. This is to ensure that the team works efficiently and effectively.

5.3.2 School Work

All team members are expected to maintain all their grades and class work during the entire time they are on the Team. As a RV Robotics Team member you are held to a high standard that many other clubs or teams do not require. Our high standards and expectations are one of the strengths of our team.

5.3.2.1 Grades:

All Team members are required to meet all school academic standards. Any Team member that falls behind in their studies will not be allowed to travel with the team in accordance with school policy.

The RV Robotics team has in its membership a number of very bright students and mentors. If students are having problems in a particular class they are encouraged to come to older students or mentors for help. Juniors and seniors are highly encouraged to help out freshman and sophomores where possible. There will not be a formal tutoring program, but by helping each other out, we help the team as a whole.

5.3.2.2 School Assignments during Travel

When we travel you are required to get all class work, assignments and readings before we leave. Please allow teachers several days to get these assignments ready for you. Getting

these assignments is your responsibility. Upon your return to school all the assignments that have been missed will be due unless your teacher says otherwise.

6 Student Expectations and Rules

6.1 Behavior

A Club/Team member's behavior is under scrutiny, at all times. It is very important that you understand that you represent RVRHS, Lockheed Martin Maritime Sensors & Systems and foremost your RV Robotics team.

6.1.1 School:

Your behavior in school and specifically in the classroom is a message to all regarding the caliber of students on our team. You are looked upon as role models, and examples of the best students our school has to offer.

You are expected to at all times be polite and respectful to all staff members and refrain from activities that are considered disruptive. Any club / Team member receiving a disciplinary of any type is subject to review by the coaches.

If you don't think you should do it, then probably you should not.

6.1.2 Events:

All eyes are on you every minute you are in public. Your behavior is a direct reflection on your character and on our team. A judge or member of another team may over hear what you say to one another and how you say it. Even the expressions on your face and body language may bring unwanted negative attention and bad impressions.

We are a very close family when we travel and conflicts may arise as a result. Students should refrain from rumors, he-said-she-said, and negative comments about one another. If a problem arises with another student you are requested to speak to an advisor immediately. Students are not allowed to have physical conflicts with each other. If a problem such as this arises, both students may be disciplined as per school rules.

6.1.3 Cooperation:

Students are requested to cooperate at all times. This is to mean that if an advisor/mentor requests you to do something you will comply with the best of your ability. Ignoring the directions or requests of an advisor/mentor is not in the team's best interest. If you feel a request is out of order, you are encouraged to complete the task then speak to the leadership staff at a later more appropriate time.

6.1.4 Inappropriate Behaviors:

These behaviors include but are not limited to the following: running in hallways, pushing and shoving, name calling (negative), making messes, fighting, swearing, stealing, and all other activities that reflect negatively on the team.

6.1.5 Boyfriend/Girlfriend:

In the event that a relationship develops or is ongoing, there are certain guidelines that must be adhered to at all times when engaged in team activities local and away.

Handholding, hugging, kissing and other expressions of affection are prohibited at all times. The couple must also travel in a group at all times. Couples may not wander off or sit alone. In other words, they should not appear as a couple but as part of the team. Common sense should prevail at all times.

The advisors reserve the right to discipline a Club/Team member as necessary for safety and the overall good of the team. The parents will be informed of any disciplinary actions as soon as possible.

6.1.6 Competition Protocol

There are certain practices that we have found to be very successful and have earned us many rewards and the respect of the FIRST community.

- **Cheering:** ***Cheering is more than yelling at the top of your lungs.*** True cheering is enjoying the event and celebrating the excitement of the moment. Organization is the key to this being a powerful tool. Your spirit leaders will give you direction and guidance for this activity. You are not expected to be cheering 100% of the time, however, when we are cheering all team members are expected to stand and cheer to the best of their ability. Sitting in the stands looking bored, carrying on personal conversations while others are cheering is not good for the team image and is not permitted.
- **Award Ceremony:** During the ceremony we will applaud the teams that are winning awards. When we applaud we will stand to show our respect for what they have accomplished.
- **Greetings:** There are certain persons in the FIRST organization that we make an effort to greet on a personal level. If you see Dean or Woody enter the area and you have not said hello, make an effort to go to where they are and greet them. If they are engaged in a conversation with another person please be respectful at all times.
- **Litter:** If you see a mess (paper or trash) you should make an effort to pick it up. That goes for the area you are sitting as well as any other location in the arena.
- **Gracious Professionalism:** FIRST uses the term “Gracious Professionalism” to mean that we should show each other within our team, and members from other teams a level of respect that shows that we can be both gracious (in winning or losing) and professional. What this means in terms of behavior is that we should make efforts to help out other teams if they request something (parts, tools, assistance) and that we should speak badly about another team, their robot, or their performance.

6.1.6.1 Things We Do Not Do At an Event

- Wearing of personal music devices is forbidden while in uniform or at an event.
- Uniforms may not be altered or worn in any manner not approved by the advisors.
- Students may not play cards or any other games at the event.
- Our team will not engage in negative behavior toward another team or team member.
- Our team will not display displeasure over any decision by a referee or judge.

- Team members will not exchange negative remarks to each other, no matter what the situation.

6.2 Plan of Assistance / Probation

There are several reasons why you would be placed upon probation and a plan of assistance. A Plan of Assistance is method of identifying a behavior and outlining the steps to correct the behavior within a specified time length of probation. The plan is a corrective method designed to assist the student and keep him or her eligible for the team.

6.2.1 Academic

Monitoring your grades will occur on a regular basis. You are expected to be making academic eligibility as per school policy. If we identify a class you are having difficulty in that may affect your GPA in a negative manner, you may be placed on probation with a Plan of Assistance. This written document (Plan of Assistance) will be provided and signed by the student and shared with the parents and the administration of the school. This document will contain suggestions for improving and correcting the behavior, a timeline for the correction and a clear explanation as to what is expected. Included will be the outcomes and consequences associated with the behaviors.

You also will be placed upon a plan of assistance if you receive the grade of “F” in any class any marking period regardless of grade point average. Two “F’s” may result in dismissal from the team.

At the end of the probation length of time if the situation is not corrected you may have probation extended or you may be dropped from the team. This decision will be made after considering the effort and progress made during the time length.

6.3 After School Activities

Many of our activities are after the school day ends, usually 2:45pm. During the fall phase, first semester, the activities are one a week and last about 1 ½ - 2 hours. During the competition season, 2nd semester, we will work each day as required. See sections 5.1.1 for more specific requirements. Students must provide their own transportation home. A phone will be available for student use.

6.3.1 Procedure

As soon as school is dismissed you should go to your locker and secure all materials including homework that you want to take home and come to the cafeteria. An advisor will meet the students and escort them to the robotics work rooms. This is because the common areas are considered off limits in the evening.

During these after school activities students will work on many aspects of the competition. This is the time that the focus of your sub group is developed. Strong pre-season preparation makes for less stress during the competition.

There are some specific tool skills that all students will learn during the after school activities. These include using a soldering iron, heat gun, drill press, grinder, dremel rotary tools, hacksaw, wrenches, multimeters, and power hand tools.

Students will also learn about the process to design our robot. Advisors, engineers and mentors will present lessons on the usage of motors, the control system computer interface and the programming language. Presentations will also include the process of designing a robot for the FIRST competition that will occur second semester.

Students are encouraged to spend as much time as possible above the required activity days. This is very important to get the project completed. Attendance will be taken and recorded in the student logbook giving credit for time spent on the project.

6.3.2 Other Responsibilities

It is understood that our students are very busy in many other school activities. These activities are encouraged and supported by our team. It is the responsibility of the student to manage and balance all their activities, informing the advisors of their commitments.

Sports teams provide different challenges and different stress upon your time. It is important to communicate with your coaches to work out the timing of your activities. Often these activities can be accommodated to the satisfaction of both activities.

There are some instances however, where the timing cannot be resolved. In this case you may have to choose which activity you will be putting your time and effort into. Please discuss this problem with a robotics advisor before you make a final decision.

6.4 Shop Rules

A large number of meetings and activities will be held in or around the wood shop at RVRHS. Because of this, a number of strict rules are enforced at all times. *Note: These Rules apply to students and mentors.*

- **Always wear safety goggles in the shop area or when using power tools.**
- **Do not wear loose clothing that can get caught in the machines**
- **Do not wear long hair down. In a braid or on bun is ok**
- **No one is allowed in the shop that is younger than high school age.**
- **Students that have not taken the Shop Safety in the fall should not use any of the shop equipment**
- **No fooling around with tools**
- **When you are finished with a tool or machine, clean up any scraps and put away the equipment before going on to another project.**

At the end of a meeting or work session, it is the responsibility of EVERY student to help put away the materials and clean up the shop. Students that continually leave early and avoid the clean portion of the evening may risk their travel privileges.

6.5 Health

Each Club/Team member needs to have a complete medical form on record with the nurse. This form must contain accurate information and be updated as the need arises. This form will be duplicated and taken with us to all events. Students cannot take their own medication with them. The district policy is that all medications (except an epi-pen, inhaler and diabetic medication) will be transported and dispensed by an approved authority; usually a school nurse. In the event you become ill on a trip, transportation home will be at the parents' expense using first available transportation. It is important that you do not travel if you are ill.

It is suggested that all students take precautions when being exposed to the sun for any length of time. Use of sunscreens is encouraged.

6.6 Uniforms

Our uniform is an important part of our image and thus must be maintained with dignity and care. There are several parts to our uniform that may be worn in several combinations.

The team uniform for RV Robotics is a **Annual Theme Shirt**. Each year the team chooses a new design for the season. Each year the decision is made whether the student will pay for the costs of the uniform. Along with the Flamed shirt is a logo printed **work tee** shirt worn as an undershirt in the full uniform or by itself in times of labor. Team caps are allowed and encouraged. Pants are allowed to be variable. However in the robot areas long pants and closed shoes are required.

If schedule and budget allow, mentors may receive golf shirts with the team and sponsors logos. Students should not wear these shirts. Mentors will be encouraged to wear this shirt on Sat at the competition to differentiate the mentors from students. In addition, Mentors are always encouraged to wear these shirts to work and in public to get the RV Robotics and FIRST names as a well-known part of the community.

6.6.1 Care

The care and cleaning of the uniform is the students' responsibility. Please wash the shirt in very mild soap using warm or cold water. Drying should be limited to hanging or drying on the low setting. Please use NO bleach or harsh detergents on any of the uniform items.

6.6.2 Appropriate Use

A full uniform is described as the Flamed shirt, pants, and cap if specified. Shirts will be worn at on Fridays and Saturdays at FIRST Regional Events and Saturday and Sundays at District events. Additional shirts can be purchased by students and parents as stock allows, and can typically be added to our orders early in the season. Additional shirts are ordered to ensure every member has at least one shirt available for the season.

Students are allowed to trade shirts without permission of the advisors but they are responsible for having a complete uniform throughout the season.

6.7 Respecting Advisors/Mentors

The advisors of our team are dedicated teachers working hard to make the season a success. Most of the work is done when we are not looking. Their work includes team organization, financial planning, overall team management and much more.

While we are on trips, they are considered to be like parents. From taking care of the students to making sure we are doing fine, their efforts are immeasurable. They are always on the lookout for us and therefore we should obey them at all times. Misbehavior towards advisors (especially during competitions) will result in severe consequences.

If you have any concerns with the activities of an advisor or their behavior toward you or others please talk to the team leader first. If the situation is not resolved the next step is to talk to the school administration.

6.8 Respecting Engineers

Extremely dedicated and talented, the engineers from Lockheed Martin and various other organizations help us throughout the season. The quality of their efforts can be seen in our bots. These are truly amazing individuals to know. Like the advisors, these people are a great source of wisdom and knowledge to you. At all times, during build season and competitions we give

these people all the respect that we can. Students should make the most of their opportunity to learn from these engineers.

6.9 Travel

Traveling as a team is very exciting and rewarding and often the highlight of a student's memories. A great deal of planning and organization is required to coordinate all the associated activities. A strong effort is made to make the travel to be a educational / cultural experience as well as the basic competition. Safety is always the major concern.

All team members are eligible to travel to all events unless otherwise exempted. A student may be exempted from travel due to a prior commitment approved by the coaches in advance or disciplinary reasons from the coaches or principals. All team members are expected to attend all events. Failure to attend an event may result in suspension or dismissal from the team.

Whether an event is local or distant, students are required to travel with the team to and from the events. At away events, students are required to travel with the team at all time unless arrangements are made with the advisors. Students may not drive their own vehicles or travel with their parents.

6.9.1 Packing:

A word on luggage is critical at this point. It is very important to pack efficiently. That means to bring only the clothes and items that are necessary and required. Remember students must carry their own luggage in the airport. You are only allowed **1 carry-on suitcase and one personal item, such as a laptop bag or backpack**. All items must meet the airlines size requirements and must be identified with your name and address on a tag prior to arriving at the airport or boarding the bus. Do not forget the NTSB has specific rules concerning liquids, electronic items and items that are banned from airplanes and their secure areas.

Students will be required to bring their luggage to the school the night prior to a trip. The advisors will inspect the luggage for illegal materials and will then lock the luggage in the team storage area. Students will not have access to the luggage again until after the team has left the school.

6.9.2 Air Travel:

Traveling on aircraft is fun and exciting for most team members. There are special procedures we must follow to ensure safe and efficient travel.

We will not wear FULL uniform when traveling. The uniforms need to be clean and fresh for the 2 days of the actual competition. Students should travel in comfortable clothing and must wear clothing that does not violate the school's dress code

We will meet at RVRHS at the designated time and location. Please be on time, as we will not wait for students. Have a back up system to your alarm clock and travel to the school. Note: All students will be responsible for their own carry-on luggage and personal item. Students will not have a checked piece of luggage. Everyone will have a carry-on and a possible personal item they will bring with them.

At the airport after unloading the bus we will form two lines of students moving to a designated area. It is key to stay out of the way of other travelers and to keep talking to a minimum at all times. If it is winter students and coaches will remove outer coats to expose our uniform as soon as we are inside the terminal.

Once inside students will stay in the designated area at all times. Luggage is not to be out of our control at any time. If students need to use the restroom he or she will need permission of a

coach. When we are ready to process your luggage and tickets students will form a line based upon alpha order to ensure everyone is present. Typically we will be given everyone's boarding pass as a packet since we purchase everything through group sales.

6.9.2.1 Counter Procedure:

Students will be processing their luggage and ticket at the counter. Again, it will be alphabetical order – except the coaches who will go first to assist the process. At the counter students will show the agents their school Identification, drivers license, or passport.. It is important to have the identification ready to be shown. You will also be asked several questions regarding your luggage. This is a serious time pay close attention. When complete move to designated location while the others are processed.

6.9.2.2 Security Check:

When all members have been processed, the team will proceed through the security checkpoints. At this point all metal items including change, cell phones, pagers and keys should be placed in the carry on item. Form a single line placing items on the conveyer when appropriate. If is winter you will place your coat on conveyor. Wait to be directed through the detector by the security person. Collect all items and wait at designated area. Here you will need to stay close to wall out of traffic area. As a reminder, keep talking to a minimum and wait for directions.

When we have all gone through the process we will proceed to the gate. Do not stop at the bathrooms, get a snack or wander away from the group. Permission will be given later if time permits.

At the gate find a seat, stay with our group and wait for further instructions. If time allows, you will be allowed to go to the bathroom or to get a snack. NOTE: We travel in groups of three or more at all times. If leaving your carry-on please ask another student to keep control of your bag.

We will take attendance several times in the airport. Please be aware of your group and refer to the attendance process outlined in the section on attendance.

6.9.2.3 Plane Entry:

The coaches will issue a boarding pass at the gate. This process will vary depending on the airlines and the workers at the gate. If you are given a boarding pass, do not put it away at this time, have it ready for boarding. An advisor for safekeeping will collect the remaining boarding passes. Directions will be given for you to board the plane. When entering the aircraft, please go to the assigned seat. Locate an empty spot overhead and store carry on or place it under the seat. Once seated follow all directions as given. Trading seats is only allowed with the coaches' permission.

If the flight serves food or drink please be very careful to avoid spills.

If you feel ill or need assistance please get the attention of one of the advisors. Some persons have a problem with the air pressure and the effect on the ears. Chewing gum, swallowing frequently sometimes helps. Consult your doctor prior to travel if this is a known problem.

6.9.2.4 Plane Exit:

After we land exit in a safe manner. Be courteous to others as you exit. Remember to get the carry-on luggage and other materials before leaving.

Upon exiting the plane, the team will gather to the side out of traffic. Listen and watch for the directions of the coaches.

We will then proceed after attendance to the baggage area. Walk in double file lines to the side away from traffic. At the luggage claim wait and watch for your luggage. Once you get your luggage go to the designated location and wait for directions. We will follow earlier directions for loading the waiting transportation.

6.9.3 Buses

Often we use busses as our mode of transportation. We will store luggage in lower compartments or on another bus if needed. Do not open windows without permission. If having a snack or drink dispose of the mess when finished. When leaving the bus make a check of the area to make sure all belongings have been accounted for.

6.9.4 Cars

Students cannot transport themselves to an event. If a parent is picking up a student, paperwork is required to be done prior to the trip. At no time will mentors or staff transport a student in their personal vehicle. At all times, all persons must wear seatbelts.

6.10 Hotel

When we travel we often stay at a hotel for several nights. **Students will be organized into room groups of either three or four students, depending on quantity of students and room availability. Students will be allowed to select roommates of their choice. There are no co-ed rooms; rooms are either male or female. Each room will have an advisor assigned to monitor and coordinate activities, this includes room inspections.**

6.10.1 Check-in

When we enter the hotel students will go to a designated location to wait for keys. At that location students will need to be very quiet as to not disturb the other guests. The room captains will be given the room keys to distribute. Often each person will have a key. If this is not the case, each room will need to designate who has the key.

Students will proceed to the rooms as soon as key distribution is complete. If your room is not ready your luggage will be put in another room until your room is ready. Upon entering your room you should complete the room inspection form and have ready for the coach.

Often there is free time in the hotel to get snacks, play in the game room or swim. If there is a pool a coach must be present to swim or use the hot tub. Appropriate attire is required. Please check with a coach if there is any question.

6.10.2 Check-Out

When we leave the hotel, all the students in each room are responsible for any charges that accrue. This could include phone calls, internet access, and any other charges. Students must leave a clean the room. This means that all furniture should be back in its original location, all trash should be in trash cans, and not permanent damage should have been done. Any costs resulting from damages will be charged to all the students in the room.

When students leave the room, all room keys should be given to the advisors and they should take their luggage to the designated team location, usually the lobby or directly to the bus. Students should proceed to the designated location in the lobby or on the bus and stay there

until all the students have arrived, the advisors have checked-out the team, and the advisors have taken a head count.

7 Expectations of Advisors, Mentors, and Engineers

As much as the RV Robotics team has expectations of the students, the students need to understand what they can expect from the advisors, mentors, and engineers (from here referred to as advisors for simplicity). The role of the advisors is to provide an educational and fun experience for the students. Advisors are expected to show the students how science, technology, and engineering can be a enjoyable and rewarding career. Advisors are expected to use their expertise to guide the students as the students design and build the robot. Advisors are expected to help students and show them how to build an effective and safe robot. Advisors are NOT expected to build the robot. Ideally, advisors should not be using any of the tools. In cases where time or skills require advisors to perform some of the labor, they should be explaining their actions and decisions to the students and making sure the students understand what is going on.

In addition to the robot construction, advisors are encouraged to be open to questions regarding their career and college experiences. Students are encouraged to talk to the engineers about what they do at work, where they went to school, and any other things that may help them make informed decisions about their next steps in life.

Advisors should treat the students with respect. It serves no one for advisors to make fun of team member or degrade them. Students that have issues with the behavior of any of the advisors should come to the team leads. Some teasing will occur due to the amount of time that students and mentors spend together, but students should tell the advisors if they are uncomfortable with any teasing.

Advisors should create an environment where students feel comfortable asking questions and learning about the process of building our robot. A student's lack of knowledge or experience should never be ridiculed and students should not have to worry about lack of experience or knowledge when deciding what areas of the team on which they would like to work.

Quite often graduating alumni like to come back to help support and mentor for the team. Alumni will be evaluated on a case by case basis. Most often the team expects alumni members to be away from the team for a minimum of 2 years before becoming eligible to become a mentor. At no time will graduating alumni be allowed to mentor for the team if they are dating a team member.

7.1 Advisor Background Checks

As the world has becomes a more dangerous place, it has forced schools and other organizations that deal with children to be more vigilant. In an effort to protect the school, the team, and our students, all advisors and mentors will be required to go through a background check. This will be similar to the checks performed by RVRHS for its teachers and staff.

7.2 Advisor Travel

Advisors are always welcome at events and competitions. In general, advisors may travel in any way that they see fit, but it is suggested that they travel with the team.

When attending away competitions and events, advisor travel expenses will be paid for those advisors that are necessary for the trip. That will include the school chaperons, usually the main

advisors, and a Lockheed Martin representative. If funding allows, other travel of other mentors will be paid based on their level of participation during the rest of the year, and how much they are directly needed for activities at the event.

Travel expenses for significant others and family members will not be covered out of team funds. In the case where the family member or significant other is an adult and will be traveling with the team on a bus or airplane, or using the team hotel reservations the adult must also go through the background check process.

8 Parent Expectations and Responsibilities

Parents are an integral part of our team and are very important to our continued success. Parents are also a key factor in the motivation and dedication of their student. Supporting their son/daughter in all aspects of their team involvement is key to them getting the most out of the program. Parents have several responsibilities, they are:

- To provide timely transportation for the student. Making sure that they are at the required events on time and ready to participate. Often we will leave for a competition very early in the morning to facilitate transportation. Parents are expected to have the student at the designated location at the prescribed time. We will not delay transportation.
- Upon return from a event parents are expected to provide transportation at the designated time. Late transportation causes an inconvenience to all involved. ***If parents continually cause advisors to wait for students to be picked up, the student will face suspension and possible dismissal from the team.***
- Parents are expected to assist their student in all fundraising activities.
- Parents are expected to provide transportation to local events, including the Breakfast Club, Saturday work sessions, after school sessions and local competitions.
- Parents are expected to provide accurate medical information and to keep advisors informed of all changes.
- Parents are also expected to help the student with spending money as is appropriate when we are at events or competitions.
- Parents are encouraged to participate in team activities whenever possible.
- Parents will participate in the “Breakfast Club” activities by forming teams that will provide breakfast and lunches on selected dates and selected activities.

FIRST offers over 20 million dollars in scholarship opportunities to team members annually. The schools involved can be seen at this link –

<http://www.usfirst.org/aboutus/first-scholarship-resources-for-mentors-and-coaches>

Scholarship opportunities for the new FIRST Robotics Competition season are typically finalized by September 30 of the previous year.. Scholarship offerings posted on the FIRST website by September 30. Deadline for scholarship application submissions is typically early to mid March. Scholarship contributor selects recipient by EARLY APRIL and notifies FIRST of recipient's name and team number. Scholarship recipients will be recognized at the FIRST Robotics Competition Championship in mid April.

9 Team Communication

9.1 Morning Meetings and School Announcements

A number of important items will often be covered either over the school announcements or at the informal morning meetings in Mr. Hans' room. This includes items such as upcoming fundraisers, permissions slips for events, etc. Please listen to any robotics related announcements and attend the morning meets periodically.

9.2 E-Mail

All students are expected to have an active e-mail address. This form of communication is by far the fastest and most efficient mode of communication. Please provide your address to the coaches for the data base records. In addition, this is the primary method for our Lockheed Martin engineers use to keep in contact with us outside the build period.

If you do not have Internet access at home to participate in e-mail, you will be assigned an e-mail buddy. The e-mail buddy will pass on any important messages via the phone.

It is suggested that you monitor your e-mail twice a day, early in the morning (before 7:00am) and late evening (after 9:00pm).

There are many free e-mail services please check with the coaches if you have any questions.

9.3 Website

The World Wide Web has become a powerful tool and influence in the world today. This concept was recognized by our team several years ago when we started the famous "forums" where teams from all over the FIRST organization meet and share information.

RVR87.com, our site, is recognized as one of the best sites in the FIRST organization. Always innovative, and always serving the common good of FIRST our site is the site to gather information on a "state of the art" format.

You can visit our website at www.rvr87.com. Team news, Pictures, Videos, Useful links and other important information will be available there. Student's images will appear on our website quite often. This is a standard policy of the team, and if this is a privacy issue that concerns a parent or student, than the team must be notified, otherwise it is agreed that images of members will appear on the team website.

9.4 FIRST Scholarships

The RV Robotics FIRST program is an excellent way to explore the career of engineering. During this program students will be exposed to many principles of engineering and the mentoring skill of the engineers from many organizations. We recognize the possibility that not all students will go to careers in engineering. It is our goal however to expose all the students to technological careers including but not limited to engineering..

There are many scholarship opportunities associated with the FIRST program. The advisors will be providing information regarding these as soon as they are made available. There is also information listed on the FIRST web site at USFIRST.ORG.

During your Junior year, it is important that you concentrate on the skill need to score high on the ACT and SAT tests as many scholarships and college admittance is based upon these

scores, as well as high school transcripts. The higher the test scores and GPA, generally, the more funds that are available for your education.

9.5 RV Robotics Team Scholarship

Thanks in part to the contributions of our founder, Wayne Smith, along with contributions by current advisors and mentors; the RV Robotics team has a scholarship that is given out to a graduating senior. The senior should be a student who has been a member of the robotics team for at least 3 years, has an interest in a career involving science, technology, or engineering, and have an academic record to be proud of. Students will be required to put in a application which will be reviewed by the lead advisors and mentors.

9.6 Alumni Internship and Job Opportunities

FIRST Robotics and the RV Robotics team is not an experience that has to end at graduation. Lockheed Martin, our primary sponsor, is interested in hiring bright young men and women to work for them. As you depart RVRHS and go on to college, please keep the advisors and mentors apprised of your contact information and career plans. Lockheed Martin is very interested in hiring former robotics team members as summer interns which could very likely lead to a job after graduation. This does not mean you can slack through college. FIRST may get your foot in the door, but your work ethic, grades, and dependability will be what earns you a job.

Students should email their resumes to Mr. Harvey Hans (<mailto:rvrobotics@rvrhs.com>) Make sure you indicate on your resume that you were a member of a FIRST Robotics team and on your cover letter that you were a member the RV Robotics Team.