

**4522**

Team Handbook

2015-2016



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## About Team SCREAM

Team SCREAM (Smith-Cotton Robotics Engineering and Mathematics) was started in the fall of 2011 by Mr. Michael Wright as an extra-curricular club. The original goal of Team SCREAM was to offer students an opportunity to pursue interests in areas of technology and engineering that were not previously offered at Smith-Cotton High School. During that first year Team SCREAM started as a small group of 5 students who participated in the inaugural Show-Me BEST Robotics Competition at State Fair Community College. During that competition the original members fielded their first ever robot named Eleanor and failed to score a single point. Although they didn't win the competition the students walked away with an award for the most creative design. They also had a new passion for robotics and were inspired to turn Team SCREAM into something great.

What started as a small group of five students has grown exponentially into the organization that you are familiar with today. Team SCREAM has matured into one of the most competitive and respected robotics teams in the world. It is our goal to become World Champions. The success that we have seen as a team has come from the dedication and hard work from the original members, mentors, and supporters over the past several years. Some of these recent successes include:

- 2011- Show-Me BEST Robotics Founder's Award for Creative Design
- 2012- Successfully created the Team SCREAM T-shirt cannon
- 2012- Show-Me BEST Robotics 3<sup>rd</sup> place overall robot
- 2012- Trails Regional BEST Robotics Qualifier
- 2012- Trails Regional BEST Most Robust Robot Design
- 2013- Greater Kansas City Regional Rookie All Star
- 2013- *FIRST* Robotics World Championships Qualifier
- 2014- Arkansas Regional- Finalist
- 2014- Arkansas Regional- Quality Award
- 2014- Greater Kansas City Regional- Semifinalist
- 2014- Oklahoma Regional- Winner
- 2014- *FIRST* Robotics World Championships Qualifier
- 2015- Arkansas Regional- Semifinalist
- 2015- Arkansas Regional- Creativity Award
- 2015- Greater Kansas City Regional- Industrial Design Award
- 2015- Oklahoma Regional- Winner
- 2015- Oklahoma Regional- Innovation in Control
- 2015- *FIRST* Robotics World Championships Qualifier
- 2015- *FIRST* Robotics World Championship Newton Division Finalist

## **About Team SCREAM**

Team SCREAM values spreading the message and inspiration of pursuing science, technology, engineering, and mathematics (STEM) fields as well as developing creative problem solving, leadership, teamwork, and real world skills. In order to continue inspiring others to follow in our footsteps we need students who are willing to put forth the energy and effort that is necessary to be successful.

Team SCREAM will continue striving to become the technological leaders in our school, community, and world. It is our hope that you will join us on our journey to help others SCREAM with us!

## **About *FIRST***

### **What is *FIRST*?**

Team SCREAM is a part of *FIRST* which means For Inspiration and Recognition of Science and Technology. Founded in 1989 by inventor and innovator Dean Kamen (inventor of the Segway), *FIRST* is an organization dedicated to inspiring young people to become leaders and innovators themselves.

*"To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders."*

Dean Kamen, Founder

### **Gracious Professionalism®**

Gracious Professionalism® is part of the ethos of *FIRST*. It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.

With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended.

In the long run, Gracious Professionalism is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity.

## **Coopertition<sup>®</sup>**

Coopertition<sup>®</sup> produces innovation. At *FIRST*, Coopertition is displaying unqualified kindness and respect in the face of fierce competition. Coopertition is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete.

Coopertition involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. Coopertition means competing always, but assisting and enabling others when you can.

## **About FRC**

As a team, we participate in the branch of *FIRST* called the FRC, or *FIRST* Robotics Competition. The FRC is just one of four levels of competition within *FIRST*, the others being: Junior *FIRST* Lego League (Jr.FLL), *FIRST* Lego League (FLL), and *FIRST* Tech Challenge (FTC). Each of these different competitions serves a separate age group, from Jr.FLL with kindergarten students, to FRC with high school.

## **What is FRC?**

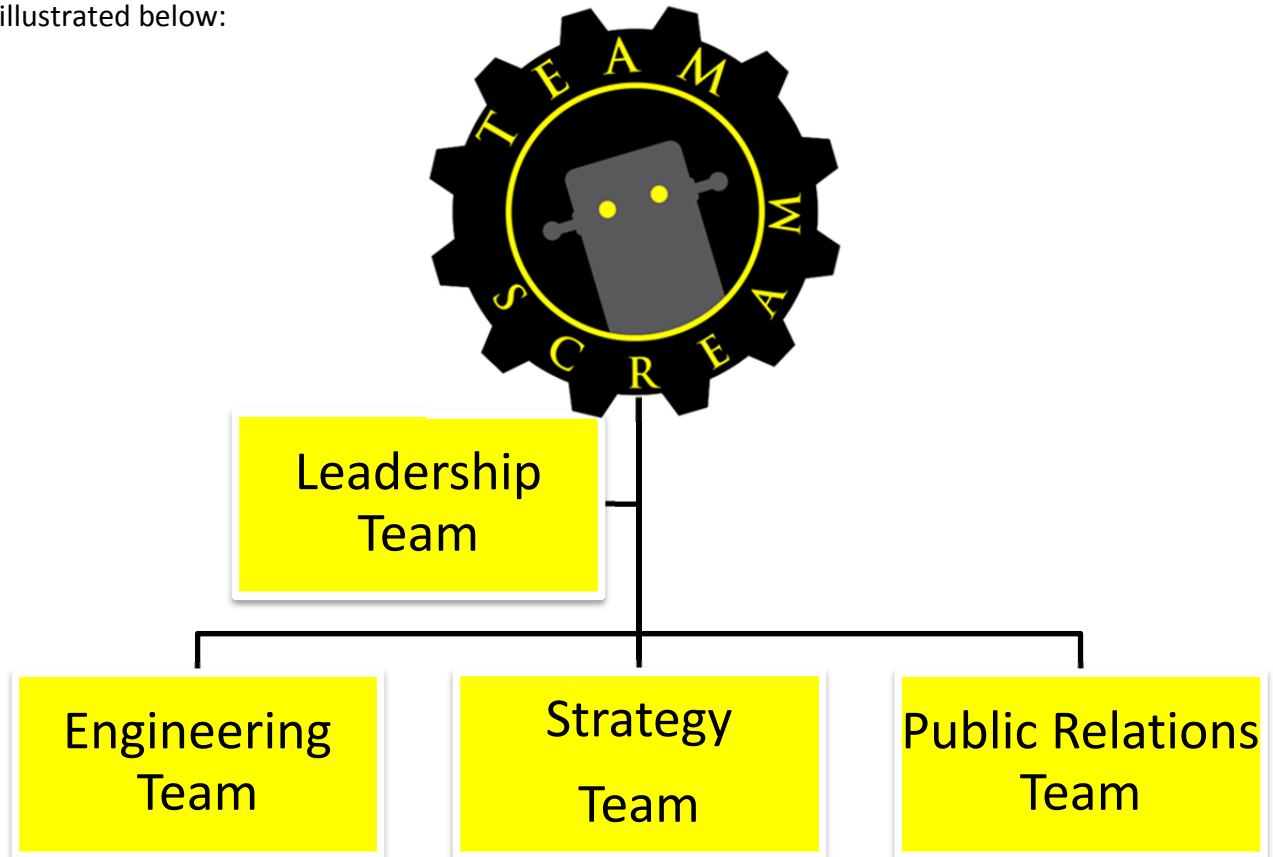
The FRC is the branch of *FIRST* competitions that we compete in. Beginning in January, teams are given a game description, a basic kit of parts, and six weeks to design, build, and test a robot to play and win the year's game. During the six-week build season, the team is responsible for all game analysis and strategy, design work, any necessary fabrication, electrical, or pneumatic work, and programming. The team must go through every step of the engineering design process in order to construct a functional, viable solution to whatever problem this year's game may pose.

One of the biggest goals of the FRC is for students to work side by side with mentors and coaches who are professionals in their respective fields. These mentors are there to teach students about the different skills that are needed to not only build successful robots but to build successful careers and futures as well.

## Team Organizational Structure

### Overview:

Team SCREAM is designed to operate as a professionally run organization. It is not just about building a robot. There are many jobs and responsibilities on Team SCREAM and they all play a vital role to the success of the team. The organizational structure of Team SCREAM is illustrated below:



Within each of these team categories there are several sub-teams which each have a different role and set of responsibilities. Team SCREAM members will be assigned to a sub-team based upon interests and experience. Just as in sports, not everyone can play every position.

During build season and competition season every member of Team SCREAM will be assigned to at least one sub-team. Some members will be assigned to multiple sub-teams according to the needs of the team. Additionally each member will be given a designation status as either a core team member or a support team member.



### **Core Team and Support Team:**

As in any organization or business, not everyone is needed on the job at all times. The same holds true with Team SCREAM. There is only so much room available in our build space and not everyone is needed at all times. With this in mind members of Team SCREAM will be given a designation status as either a core team member or support team member. Core team members are generally veterans who have more experience and responsibilities and they are required to put in more hours. Support team members are generally first year members who do not have a lot of experience and are in training to become core team members in the future.

Team scheduling will be in place that will determine which sub-teams are scheduled to work that particular day. It will also include the hours for core team members and support team members. **During build season only scheduled personnel are allowed to be at the school after 6pm.**

### **Leadership Team:**

The leadership team of Team SCREAM is made up of members who are selected by the coaches to be the voice of the team as well as to make important decisions for the team. The leadership team members are generally upperclassmen with the exception of one or two underclassmen to represent the freshman and sophomore grade levels. Leadership team members are representatives for each of the sub-teams as well. They provide status updates from each sub-team, take care of attendance, and schedule the tasks assigned to their group for each meeting. Participating in the leadership team requires extra work and it is a privilege to be a part of.

## Sub-Team Descriptions

### Engineering Team:

The engineering team is responsible for building the year's robot. This team works with mentors to design the robot, as well as to prototype, build, and implement the various subsystems required for the robot's successful operation. They handle any additional engineering projects required by the team. The engineering team is broken down into two major sub-teams. These two sub-teams are shown below along with a listing of descriptions, job responsibilities, etc.

#### Controls-

The controls sub-team is responsible for all of the control software, electrical systems, and remote control capabilities of the robot. Members of this sub-team will work with the mechanical team, strategy team, drivers, and coaches to determine how the robot should operate during the competition. Some of the common job descriptions are shown below:

- Robot programming
- Electrical wiring
- Control system setup
- Robot communication
- Remote control interface
- Custom control board design and fabrication
- Autonomous programming routines
- Sensor usage and wiring
- Feedback control
- LED lighting and controls

#### Mechanical-

The mechanical sub-team is responsible for the overall design, prototyping, fabrication, and assembly of the competition robot. In addition to the robot, members of this sub-team will be responsible for building the field elements as well as any pit or organizational projects that arise. Members of this sub-team will work with the strategy team and the controls team to build a robot that meets our strategic goals and performance goals. Some of the common job descriptions are shown below:

- CAD Design- Inventor
- Manual machining- lathes and mills
- Power tool operation

### **Mechanical Cont'd-**

- CNC machining
- Prototyping
- Drive train development
- Sub-system development
- Storage solutions
- Robot cart design and fabrication
- Field element fabrication
- Pneumatic system implementation
- Utilizing the design process
- Robot crate fabrication
- Repair robot

### **Strategy Team:**

The strategy team is responsible for analyzing the year's new game and determining the best strategy that our team should take in order to win a world championship. Members of this team work with mentors to come up with the strategic gameplay for our team so that our engineering team can build from. The strategy team is broken down into two major sub-teams. These two sub-teams are shown below along with a listing of descriptions, job responsibilities, etc.

### **Scouting APP Development-**

The scouting APP development sub-team is responsible for creating a scouting app that is used at competitions for match strategy, team analysis, and for helping us pick alliances that will help us to win. This scouting APP is critical to the success of our scouting and strategic plans. Members of this team will work with mentors to develop the APP along with the databases for analyzing the data. Some of the common job descriptions are listed below:

- Statistical analysis
- Excel spreadsheets
- Database creation
- Data visualization software
- APP hardware usage
- Strategic implementation
- Programming, testing, and debugging
- Scout team training

### **Strategic Analysis-**

The strategic analysis sub-team is responsible for knowing the game inside and out and for analyzing it to create the ideal strategy for our robot and our team. Members of this sub-team must be passionate about creative strategies and learning from past games that have been played. In addition to that they must know the capabilities of all other robots and how we will play with and against other teams. Some of the common job descriptions are listed below:

- Gam analysis
- Statistics
- Past game match history research
- Robot research
- Gameplay and strategy research
- Communicating to sub-teams and other robotics teams
- Match strategy
- Pick list development
- Alliance selections
- Scouting APP collaboration
- Match data gathering
- Data analysis
- Robot attributes knowledge

### **Public Relations Team:**

The public relations (PR) team is responsible for the image and branding of our team. One of our most important tasks as a team is to spread our message and to present ourselves in a positive manner to our school, community, supporters, and to other teams. The PR team is responsible for creating a wide range of multimedia projects as well as presentations and speeches. The PR is broken down into two major sub-teams. These two sub-teams are shown below along with a listing of descriptions, job responsibilities, etc.

#### **Multimedia-**

The multimedia sub-team is responsible for creating all photo and video content for internal and external team use. Members of this sub-team will work with photo and video equipment and software to create a variety of projects that help showcase our team as well as have historical and technical usage. Some of the common job descriptions are listed below:

- Digital photography
- Photo editing
- Photo organization and storage
- Video recording
- Video editing
- Story board planning
- Highlight videos
- Graphic design
- Poster and handout designs
- Pit displays
- Technical photos and tutorials

### **Communications-**

The communications sub-team is the voice of Team SCREAM. Members of this sub-team work with the multimedia sub-team to create valuable content for us to put in front of our various audiences. This sub-team is responsible for creating and updating a variety of print copy that is used to tell our story. This team is also responsible for being the spokesmen for our team at events. Some of the common job descriptions are listed below:

- Blog writing
- Newsletters
- Social media updates- Facebook and Twitter
- Chairman's presentation
- Awards submissions
- Press releases
- Team member interviews
- Story development for multimedia sub-team
- Public speaking to judges and supporters

## **Team SCREAM Eligibility Requirements**

Becoming an official member of Team SCREAM is a multistep process. Students must first meet the eligibility requirements. Students then must apply for a position on the team. If they are selected to become a team member they must abide by the team rules and expectations. These requirements, rules, and expectations are listed below.

### **Eligibility Requirements**

In order to become an eligible member of Team SCREAM the student must:

- Be in grades 9-12 at Smith-Cotton High School
- Attend the parent/student information meeting
- Complete and submit the Team SCREAM application and agreement
- Participate in the interview process

### **Application, Interview, and Selection Process**

Students must submit a complete application to the coaches by the assigned due date. Coaches will review the applications and determine who they wish to interview for positions on the team. Coaches will contact students for interviews as needed. The selection criteria that is used by coaches includes but is not limited to:

- Grades
- Discipline history
- Character
- References
- Availability to work
- Desire to learn
- Needs of the team
- Available positions

Coaches will make selections and then notify all applicants on whether they are accepted or not. Unfortunately we are not able to allow everyone on the team due to size and safety reasons.

## Team Membership Requirements and Expectations

Once you have met the eligibility requirements and have been invited to join Team SCREAM, you must then meet the following requirements and expectations. Being an active and productive member of Team SCREAM is important for the success of our team. We are always striving to be our best at all times.

**Academics:** It is expected that all members of Team SCREAM set a high standard of academic excellence. This is the first and most important priority of the students of Team SCREAM. Students are not eligible to participate in any Team SCREAM activities or competitions if they have a “D” or below in any of their courses. Grades will be checked weekly throughout the season. If at any time during the season the student has a “D” then the student must stop all participation with Team SCREAM until the grade is raised. Once the grade is shown to be above a “D” the student may return to the team. If the student has a “D” or lower for more than two weeks then the student will be removed from the team.

To be eligible to travel with the team students must not have a “D” one week prior to the departure date. If the team is leaving on a Wednesday for a competition, grades will be checked the Wednesday before the team is scheduled to leave. If the student has a “D” then they are not eligible to attend even if they raise their grade before the team departs. No exceptions.

**School Rules:** Team SCREAM is an extension of Smith-Cotton High School and the Sedalia School District. All school rules and policies apply. Students will be required to abide by these rules at all times.

**Safety:** Due to the technical nature of Team SCREAM it is mandatory that all members be trained to safely use tools and how to participate safely in the shop. Every team member MUST take and pass the written safety tests with 100% accuracy before being allowed to participate in the shop. All safety guidelines and procedures must be abided by at all times. Unsafe behavior or practices will not be tolerated at any time.

**Fees and Costs:** There are several costs associated with being a part of Team SCREAM that team members are responsible for. It is expected that team members pay for the following:

- Team uniform (1-team polo shirt and 1-team t-shirt)
- Hotel accommodations (fundraising opportunities are available)
- Food at events

**Participation:** Being a member of Team SCREAM requires a lot of time and dedication. Team SCREAM members are expected to participate in a productive manner. We have limited build areas, classroom space, and mentor support, so we must use our time and resources wisely. Non-productive students will be asked to leave. Students who are constantly not being productive will be asked to leave the team. Throughout the season there will be a variety of meetings, activities, trainings, and competitions to participate in. These will be both mandatory and non-mandatory. It is expected that team members attend all mandatory events and at least 75% of the non-mandatory events. Mandatory and non-mandatory events will be defined in the team calendar.

**Volunteering:** One of the most important components of Team SCREAM is volunteer work. It is our goal as a team to inspire others and to become a change for good in our communities. Throughout the year there will be several volunteer opportunities available to participate in. These will be both mandatory and non-mandatory. It is expected that team members attend all mandatory volunteer events and at least 75% of all non-mandatory events. Mandatory and non-mandatory events will be defined in the team calendar.

**Varsity Letter Eligibility and Requirements:** One of the highest accomplishments in high school activities is to receive a varsity letter. This honor is awarded to individuals who fully commit to the team. This award is earned not given away. Team SCREAM students are eligible to receive a varsity letter in robotics if they meet the following criteria:

- Maintain a B (80%) average or better for the year
- Participate in 80% of all activities
- Attend all competitions
- Be a productive and proactive member of Team SCREAM
- Submit a reflective essay on what you learned and experienced from Team SCREAM
  - Minimum of 2 full pages (typed)
  - Describe what you learned, and experienced
  - Describe what you will take away from this experience
  - Describe what skills you gained
  - Describe ways that we could improve as a team
  - Describe your favorite memories from the season
  - **Essay must be submitted by May 1<sup>st</sup>.**



## **Code of Conduct**

As a member of Team SCREAM you are a part of something bigger than yourself. Your actions reflect not only upon you but upon your team, school, community, and our sponsors. With this in mind team members are expected to abide by the following code of conduct. Continued offenses will be grounds for dismissal from Team SCREAM.

### **General Code of Conduct**

Students on Team SCREAM will:

- Work safely in the shop and will abide by all safety rules
- Strive to work as a team and promote unity among team members
- Respect team members, coaches, mentors, sponsors, and school personnel
- Fulfill academic requirements
- Be punctual
- Be productive and contribute to the success of the team
- Abide by school rules and policies
- Clean up and put away all materials before leaving each day
- Avoid the use of inappropriate language
- Avoid public displays of affection (PDA)

### **Competition Code of Conduct**

During competitions students on Team SCREAM will:

- Remain with the team at all times
- Always travel with a fellow team member
- Abide by the team dress code discussed for each event
- Be respectful and quiet at hotels
- Avoid entering hotel rooms of members of the opposite sex
- Stay with team until we return home and unload all equipment
- Display gracious professionalism to all

These Codes of Conduct are general in nature and it is our expectation that you use common courtesy and common sense as a member of Team SCREAM.

## **Disciplinary Procedures**

It is the goal of Team SCREAM to operate as a safe and productive team. Throughout the year there may arise discipline issues that need to be addressed. Some offenses will result in the dismissal from Team SCREAM. The following is a list of basic discipline procedures.

### **General Offenses**

General offenses are actions that have a negative impact on the student and/or team that need to be addressed. These offenses will be discussed with the student by the coach. Continued offenses will be grounds for dismissal from the team. Some of these offenses may include but are not limited to:

- Arguing, disrespect, and poor attitude
- Non-participation and non-productivity
- Using inappropriate language or behaviors
- Unsafe work habits and safety violations

Students who engage in general offenses will be subject to the following discipline procedures:

1. Warning from coach and discussion on expectations
2. Conference with coaches, given final warning, and sent home until next meeting
3. Dismissal from team

### **Dismissal Offenses**

Dismissal offenses are actions that will result in immediate dismissal from Team SCREAM. Students who are dismissed will not be eligible to return to the team until the following school year. These offenses are categorized as major offenses that endanger others and/or disrupt the operation of the team. Some of these offenses include but are not limited to:

- Fighting
- Stealing
- Drugs, tobacco, or alcohol use
- Insubordination
- Destruction of property or vandalism

Final discipline procedures and actions are up to the head coach and school administration. This list only serves as a general guide.

