

The Official FRC Team #3189

“Circuit Breakers”

Team Handbook

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Circuit Breakers Team Creed

Adopted by team consensus: 10/2009

On this team, we will not only construct a functional robot, but more importantly, craft unbreakable friendships and communication skills. Communication, friendship, and respect are the three essential elements to a successful team. In order to advance our mechanical and social skills, we will work politely and therefore maintain a positive and understanding attitude. By encouraging a free-thinking and creative environment, we will essentially learn more about the mechanics of robotics and create a functional robot to compete in the FIRST competition. Since this team meshes together various high schools within the El Dorado Union High School District, we are able to defeat the stereotypes associated with different schools and freely express ourselves among our fellow teammates. Thus, friendship, cooperation, and respect are the nuts and bolts that fasten together our robotics team.

Team Principles

- 1) Gracious Professionalism is our core value. Gracious Professionalism is the display of unqualified kindness and respect in the face of fierce competition. It encourages high-quality work, emphasizes the value of others, and respects individuals and the community.
- 2) We respect each team member and their opinions.
- 3) We reach consensus regarding decisions and ideas. Consensus is an agreement by all to move forward in a certain direction. It is not an agreement that the chosen direction is the best, or the favorite of all involved.
- 4) We believe that **all** questions are important: If you don't understand, ask. If you sort-of understand, keep asking. Questions are crucial to understanding. Understanding is crucial to accomplishing our goals.
- 5) We believe that **every** idea has value.
- 6) We commit to taking the Circuit-Breakers Stretch™ outside of our personal comfort zone. Only by pushing our own individual limits will we be able to grow. Growth renders confidence. What good is our genius if we are too uncomfortable to share it?
- 7) We think outside of the box; our only problem-solving limit is our imagination. We practice judgment-free brainstorming.
- 8) Project acceptance includes responsibility for performance & task completion. Delegation of project pieces does not alleviate responsibility for performance and completion.
- 9) All team members are encouraged to participate in both the Engineering and Business sectors of the team.

EDUHSD Robotics Team Constitution

Established August, 2009

EDUHSD Robotics Team

Circuit Breakers

FIRST Robotics Competition (FRC) Team #3189

➤ Article I: Purpose

- To provide a hands-on opportunity for high school students interested in science, technology, and robotics, to design and build a robot for FIRST Robotics Competitions. To promote science and technology throughout the elementary and secondary student community.

➤ Article II: Authority

- As the EDUHSD Virtual Academy at Shenandoah (VAS) is the current EDUHSD Robotics Team host site, this organization derives its authority directly from the Associated Student Body at EDUHSD VAS, and indirectly from the EDUHSD VAS Principal and the District Board of Education for El Dorado Union High School District.
- Team business is conducted by students with council from a Faculty Team Advisor, a Team Coach, and a Steering Committee composed of the EDUHSD Faculty Team Adviser, adult volunteer mentors, and student team co-Captains.

➤ Article III: Membership

- This organization admits all students of El Dorado Union High School District who have an interest in joining the team with the exception of a membership that creates a safety hazard to the member in question or to other members of the team. Members must maintain a minimum of a 2.0 grade average. No experience is necessary. Interests in science, technology, robotics, computer programming, design, electronics, administration, public relations, marketing, art and team spirit are each qualifying interests.
- As permitted by EDUHSD, each member will be charged a \$95 team participation fee at the beginning of each year to each member to help defray team expenses. Any members unable to pay this fee should speak to Team Coach.

- Team transportation to and from meetings and all events will be in accordance with EDUHSD transportation rules.
- All members are required to comply with district rules regarding alcohol, drugs, weapons, internet usage, dress codes and anything else that pertains to normal school activities and behaviors.

➤ Article IV: Meetings

- Regular meetings will be held after school weekly for two hours. For the current year, meetings will be held on Fridays from 4 -6 PM. During the six week robot build period (Jan. - Feb.) meetings will be held up to 7 days per week beginning early morning and going into the night depending on what is deemed necessary to complete the project by the given deadline. Students are not required to attend all meetings during the build period.

➤ Article V: Team Leadership

- Co-Captains: Preside over all meetings. Oversee activities and determine individual group activities on a daily basis. Responsible for project management, upholding the Team Creed and practicing Gracious Professionalism.
- Team Leaders: Preside over individual groups: design, mechanical, electrical, programming, and business. Responsible for project deadline management within each group and for communication with other group leaders and Co-Captains. Responsible for logging groups daily progress. Also responsible for upholding the Team Creed and practicing Gracious Professionalism.
- Ambassadors: Represent Circuit Breakers and act as liaison between the team and the individual high schools. Responsible for all communications, advertising of events and seeking permission where necessary for team activities on the individual campuses. Also responsible for upholding the Team Creed and practicing Gracious Professionalism.
- Treasurer: Keeps financial records, reconciles with ASB records.
- Safety Captain: Responsible for learning all FIRST safety rules and making sure team is compliant. Assists mentors in monitoring safety in the lab, during public appearances, and during competitions.

➤ Article VI: Appointments

- Co-Captains: At the end of each year, two Co-Captains (preferably seniors) are appointed by the steering committee for one term: the upcoming year.
- Team Leaders: All team leader applicants are interviewed and chosen by the team Co-Captains.
- Other Officers are accepted as they volunteer for the position. If there is more than one volunteer, Co-Captains decide on the appointment.

➤ Article VII: Academic Credit

- Elective Pass/Fail Academic Credit is available for all student team members for up to 10 elective credits per academic year, depending on the number of hours of participation and the regular keeping of an Engineer's Log Book to be reviewed by EDUHSD Faculty Team Advisor. Students may opt out of receiving academic credit if they wish. Changes pertaining to Article VII require the approval of EDUHSD and may not be altered by student decision or vote.

➤ Article VIII: Amendment

- Consensus of the Leadership Team in attendance is needed to amend this constitution.

➤ Article IX: Service to School

- All Circuit Breaker Team members are responsible for exemplary conduct in all school activities. The team will find appropriate ways to participate with the robot in activities promoting school spirit, science, and technology in all district schools with team representation. All team members will uphold the Team Creed and practice Gracious Professionalism.

Team Membership Requirements

- Complete interview routines and be accepted onto the team.
- All members, including veterans, must be interviewed each year prior to formal acceptance.
- Students must apply and be accepted to the team before Kickoff.
- It is expected that student team members will attend team meetings when at all possible. Team members with a poor attendance record will not be considered for leadership/advanced team roles.
- Students who have not submitted their completed permission slip by the deadline (the week after parent orientation) will not be allowed to attend team meetings until they have completed the permission slip.
- All students must accept business jobs, such as fundraising, community outreach, freshman orientation, etc. Students who are participating in other sports or activities will be assigned a business job in their absence.
- Students must maintain acceptable grades, defined as above a 2.0 GPA.
- Students must be respectful to all other team members, mentors, school staff, equipment and facilities.
- Students will conduct themselves in a productive manner during meetings. Unproductive behavior will result in probation, disallowed hours toward academic credits, and possible expulsion from the team.
- Membership reviews are performed periodically, at the discretion of the Co-captains and mentors.
- Students will adhere to team safety dress code: No open-toed shoes, baggy clothes, loose jewelry or loose hair. Safety glasses must be worn in the lab.
- For public appearances, or where the team is presenting or competing: Team shirts must be worn, in addition to the regular safety dress code.
- When a student is in violation of the dress code their parent will be contacted and asked to pick their student up early from the meeting or event.
- All team members must supply an email address to be used for team communications. All members agree to check email for team communications. Students without email, are responsible to check with other team members for current communications. Parents are encouraged to supply their addresses as well.

Team Rules

- 1) Safety FIRST! Listen to your Safety Captain, adhere to team dress code, and **use common sense!**
- 2) **Read and Re-read the safety manual and the game manual!**
- 3) Stay on-task until your job is completed.
- 4) Listen courteously without interrupting.
- 5) Treat all tools and facilities with respect.
- 6) Formulate idea, **research**, test, build. In **THAT** order!
- 7) Draw it.
- 8) Look at the drawing, measure twice, look again, measure once more, **THEN** cut!
- 9) Laugh a lot! Tell funny, **appropriate** jokes.
- 10) All student members of the team must participate in the **mandatory** "fun breaks!"
- 11) Clean up after yourself. Return tools and materials to their proper locations.
- 12) Team members who miss a GEMM(General Education Mentorlecture Meeting) must write-up a page of notes on the subject.
- 13) Electronic/Video/Computer games are not allowed in the lab or at events.
- 14) All student team members must abide by membership/leadership requirements, team performance, disciplinary procedure guidelines, and preserve the balance of the Force.

Student Leader Requirements

- Student leaders must serve as positive examples for other team members, and as such are expected to pay special attention to both team and FRC rules. All team leaders are subject to discipline guidelines as administered by Team Captains, who are in turn subject to discipline guidelines as administered by team mentors.
- Student leaders must maintain an exemplary attendance record: Rare absences are acceptable, so long as the leader in question arranges with another leader to cover all their responsibilities and take notes for them.
- Student leaders must be eager to learn, from their own mistakes if necessary.
- Student leaders must be willing to mediate disputes involving other team members (students or mentors).
- Student leaders are expected to maintain a project management logbook, in which they record decisions made and daily progress by themselves or their group, technical drawings, etc. If leaders fail to complete this log more than once, they will be removed from their leadership position by Team Captains.
- Student leaders are expected to follow the directives of their superiors (group leaders < Team Captains < Mentors). Safety-related questions & inappropriate use of authority should be reported to Mentors or EDUHSD Faculty Team Advisor.

Team Management Principles

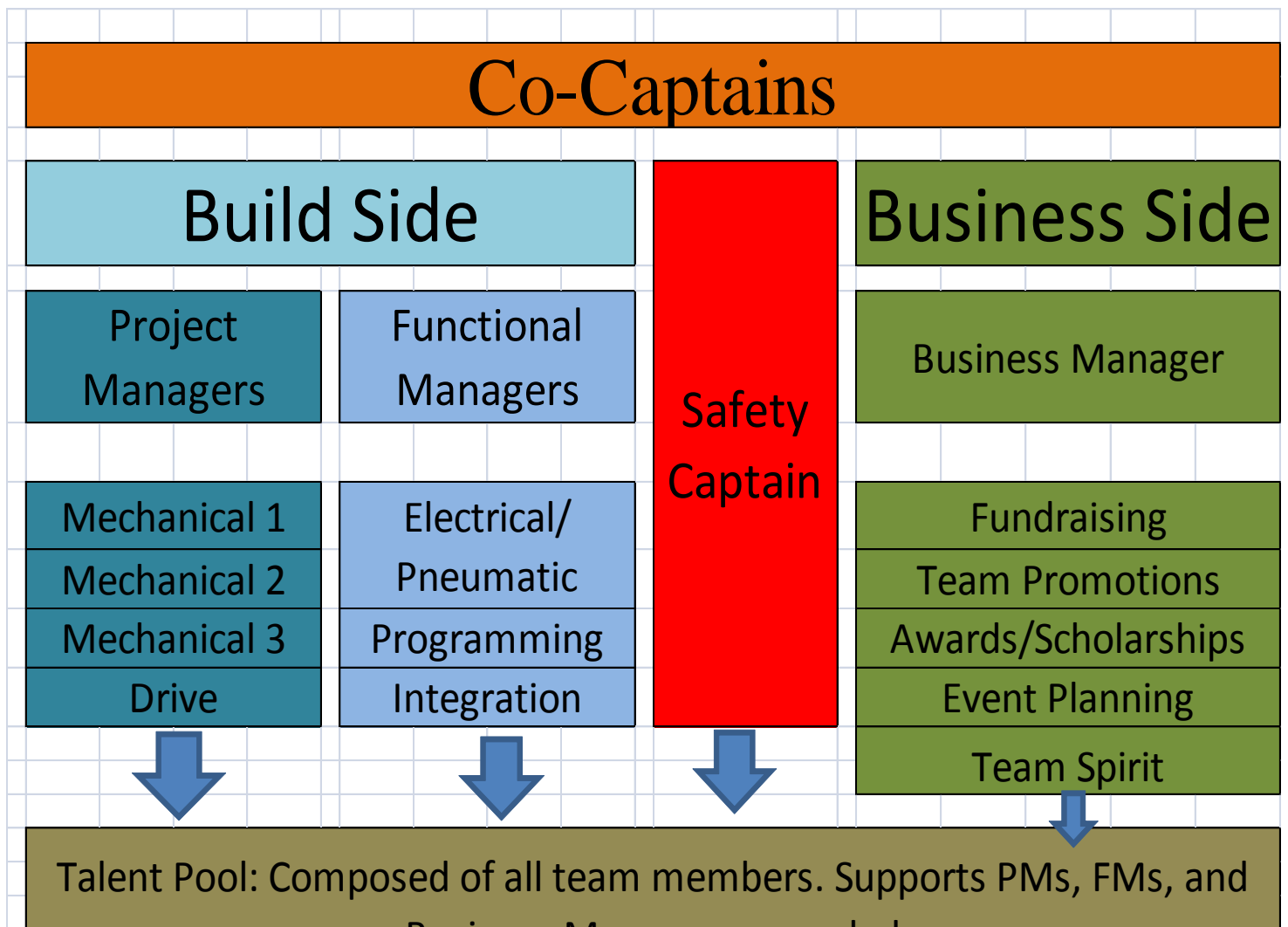
- Be polite.
- Be efficient.
- Always plan ahead.
- Lead group to consensus on decisions.
- Validate and encourage ideas.
- Be assertive with disciplinary guidelines – intervene - do not let a bad situation get worse.
- Treat members equally and with respect.
- Seek council readily when in doubt.
- Mentors are expected to leave as much control as is wise to the students, intervening as needed for safety reasons, to advise, to instruct, or to veto a particularly poor decision.

Team Discipline Guidelines

- When a team member is unproductive, every single team member has license to redirect them by asking that person "We build robots, how are you helping?" All team members are responsible to interfere & redirect unproductive members.
- Ongoing unproductive behavior will be dealt with by the Team Captains, who will determine whether or not probation is warranted.
- Job acceptance = performance + completion. Members who do perform or complete assigned tasks will be placed on probation by Team Captains and given three (3) additional tasks to complete on time in order to regain their membership in good standing. These three tasks will be logged, in writing, on the CB agreements log sheet. (See agreements log sheet, next page). Captains must review and sign off each additional task as it is completed.
- Hours logged for team participation and academic credit on the attendance sheet may be disallowed by Team Captains if said hours are deemed to be unproductive from the perspective of both captains.
- Team members should notify a Team Captain if a team member is excessively rude to others, ignores instructions, etc. Team Captains will escalate the issue to a mentor if such is warranted.
- Students violating the team dress code are subject to probation or expulsion from the team, at the discretion of Captains with Mentor approval.
- Members in violation of team rules, safety and/or discipline guidelines are at risk of expulsion from the team.

Circuit Breakers				
EDUHSD Robotics Team				
Agreement Log Sheet				
We build robots. How are you helping?				
Date	Team Member	Task	Due	Done
1				
2				
3				
4				
5				
6				
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25				
26				
27				

Organizational Chart:



*All PMs and FMs will wear yellow fluorescent safety vests, identifying them as either a Project or Functional manager.

Task-Force Endorsed Schedule:

(This schedule is intended to be a helpful recommendation based on 3 years of Circuit Breaker experience)

Circuit Breaker Team KickOff

- **Year start (2nd week of school) Veteran's Meeting: Decide format & agenda for first team meeting including but not limited to:**

Introduction to FIRST (FIRST video)

Introduction to Circuit Breakers (video/oral presentation/review team handbook)

Permission Slip (handout and review)

Flyer regarding Mandatory Parent Orientation (handout)

Lab Tour

Conducting of Interviews (questions - we have last years, assign interviewers, procedures)

Team Building

Question and Answer

Refreshments

- **First team meeting (3rd week of school):**

Conduct as planned at Veteran Meeting

- **Mandatory Parent Orientation (4th week of school):**

FIRST video (promo and Gracious Professionalism)

Intro. to Circuit Breakers summary

Intro. to Mentors/Faculty Advisor/Steering Committee

Time commitment students and parents (regular and build)

Transportation rules

Team Handbook online

Participation fee

Permission slips

GPA requirements for students

Disciplinary Guidelines

Mentor volunteer slips

Year Long Team Timeline

2012 TF-Endorsed Team Timeline		Build Side		Business Side	
Summer		Dream about Robots		County Fair	
		County Fair		Leadership Team Retreat	
Fall		General-Educational Mentor lecture Meetings (GEMM)		Fundraising	
				NASA Grant	
		Pneumatics		E-Waste	
		Programming		E-Watt	
		Solidworks/Autodesk		Scrip	
		Mechanical		Philanthropist Org.	
		Business		Presentations	
		Consensus		Sponsor-Hunt	
		Electrical		Recruitment	
		Design and prototype Drive Train		Post fliers in schools	
		Practice on old robots		Freshman Orientation Days	
		Research Past Designs			
		Find best Chain-Link Tensioner		Club Day	
		Driver Tryouts		Football Games/ T-shirt Cannon	
				Back-to-School Days	
				Team Promotions	
				Media	
				School Newspapers	
				Football Games/ T-shirt Cannon	
				Plan & Schedule Spring Middle School Visits	
				Mentor FLL Build Season	
				FIRST Fall Awards	
				Autodesk	
				Safety Animation	
				Create Business Plan	
				Competition Registration	
				Team building	

Build Season	Week 1	Saturday (Kickoff)	Weeks 1 through 6
		Have Pizza, watch game animation	Assign FRC Award teams
		Download Game manual, read rules	Submit FRC Awards
		1-hour silent period where groups of three study the rules. Each group of three must formulate 3+ questions about the rules	Second E-Waste Fundraiser
		Create game strategy & Robot concept	Order/make Spirit props
		Lay out tape mock-up of field	Renovate Mascots
		Sunday	Designate/train Pavilion Crew
		Recap and discuss game strategy	Prepare Scouting Team
		2 hours to research previous robots' responses to similar game concepts	Pit Design
		Form trios to strategize, research, and create Proof Of Concept (POC)	Safety Promotions
		Monday	Apply for Awards
		Assign PMs, FMs, and design teams	E-Waste Fundraiser
		Review the 6-week timeline	Buttons/Giveaways/Shirts/Banner
		Tuesday	Order/make Spirit props
		Design & Build drivetrain	Mascot/Write cheers/Buttons/Giveaways/Shirts/Banners/Signs/Platt bottles/Flags
		PMs divide their projects into sections	Spirit Strategies for Competition
		Saturday	Finalize Award Applications
		Robot design finalized	Cooperation/G-P Promotion
		PMs submit "Required Materials" list	
	Week 2	Order Parts	
		Integration FM begins integrating systems	
		Finalize designs & parts list	
		Design systems & components	
	Week 3	Fabricate Components	
		Complete fabrication & procurement	
	Week 4	Sub-Teams assemble robots	
		Complete robot	
	Week 5	Test & Refine	
		Finalize Drive Team Selection	
		Create Bill-o'-Materials (BOM)	
	Week 6	Drive team practices & refines strategies	
		Evaluate Shipping Crate for Championships	
		Prepare robot for transport (Bag n' Tag)	

Post-Build, Pre-Competition	To do:						
		Review Game Rules		Pack Materials for competition			
		Practice Game Strategy		Assign VIP Ambassadors			
		Review & Refine Scouting Plans					
		Modify Shipping crate if necessary					
		Pack tools & materials for competition					
		Collect completed forms for competition registration					
Spring							
		Clean-up/Organize shop		Middle-School Presentations (Pre-scheduled in the fall)			
		Championships?		Clean-up/organize Mission Control			
				End-of-year Party			
				Evaluate & Plan fundraising for next year			
				Steering Committee: Appoint new Captains			
				Archive the Year's Documents (Historian)			

Business-sector Jobs

- Team Business

Business Manager
 Treasurer
 Correspondence
 Computer IT
 Historian/Librarian/Keeper of the Sacred Scrolls
 Co-Captain
 Safety Captain

- Fundraising:

E-Watt
 E-Waste
 NASA Grant
 Philanthropist Organizations
 Sponsorship-hunt
 Grants

- Team Promotions

Ambassadors:

- Oak Ridge
- Ponderosa
- Union Mine
- El Dorado
- Shenandoah

Newspapers
 Website
 County Fair
 Middle Schools
 FRC Team Relations
 Photographer
 Presentations

- Awards

Woody Flowers
 Chairman's

Safety Animation
Autodesk
Entrepreneurship
Abbot Inventor
Excellence in Engineering
Website

- Spirit

Cheerleader
Mascots
Buttons
Fun Czar
T-shirts
Party Planner

- Scholarships
- Scouting