



Team 254: The Cheesy Poofs
Bellarmino College Prep

Team Handbook



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Introduction

Welcome to Team 254! We are excited to have you as part of Team 254: The Cheesy Poofs. This handbook contains the key policies, goals, grading system, and expectations of Team 254 and its members along with other information you will need.

The success of Team 254 in robotics and its numerous other activities is due to the dedication of our members. Your participation is essential to fulfilling our program's goals. Every member's commitment and responsibility keeps our team running smoothly. We hope that on Team 254, you will acquire and continue to use such life skills through college and your future career.

Mission Statement

We aim to equip a community of students passionate about science and technology with the skills and initiative to become the next generation of leaders and create positive change in their respective career fields.

Team History

Team 254 was founded in 1998 in partnership with NASA Ames Research Facility. After Broadway High School's closure in 2000, Team 254 moved to Bellarmine College Preparatory. While the team's student members changed, The Cheesy Poofs have continued to flourish. Notable accomplishments and events include:

- 1999 : 254 begins competing in the FIRST Robotics Competition
- 2001 : 254 moves from Broadway to Bellarmine College Preparatory
- 2004 : 254 wins the FRC Chairman's Award, FIRST's most prestigious award
- 2009 : 254 begins competing in the VEX Robotics Competition
- 2011 : 254 wins the VEX Excellence Award, VEX's most prestigious award
- 2011 : 254 wins the FRC World Championship
- 2014: 254 wins the FRC World Championship for the second time

What We Do

Team 254 members participate in a number of technical programs, as described below.

The *FIRST* Robotics Competition (FRC) and Build

The FIRST Robotics Competition, the primary component of the robotics program at Bellarmine, comprises of more than four thousand teams worldwide and releases an annual challenge requiring teams to design, build, and program robots to compete in 3 v. 3 games.

Members work with faculty advisors and mentors to design and build advanced robots to compete in the FIRST robotics competition. After the game is revealed, FRC robots are quickly built using computer-aided designs and advanced metalworking equipment. Build occurs during an intensive six-week period. Team 254 builds two robots, a competition robot and a practice robot. At the end of the build season the competition robot is bagged and tagged while the team continues to work on the practice robot until competition.

The VEX Robotics Competition and Build

The VEX Robotics Competition, another component of Team 254, also releases an annual game challenge, but with smaller (18"x18"x18") robots built with the VEX Robotics Design system.

For VEX Builds, members are split up into VEX sub-teams, each headed by two student VEX Captains, and moderated by mentors, faculty advisors, and student leaders. During the season, members build and program robots to meet the game's challenges. After several weeks of build, members compete in a series of tournaments with the goal of qualifying for the VEX State and World Championships.

Scouting and Strategy

Both competitions require an element of strategy in addition to technical capability. Strategy is open to all members, especially at whole-team discussions at the FRC and VEX Kickoff days.

Scouting, on the other hand, occurs during the tournaments, and serves to evaluate the strengths and weaknesses of the competition, develop match strategies, and determine which robots to pick during alliance selection. Very little scouting work happens outside of competition.

Sub-teams

All nontechnical work on team projects is divided into different categories and assigned to the corresponding sub-team. Each sub-team is headed by a student leader who delegates work to its members. Every student will be assigned to one sub-team based on what they selected on their

application. They will have obligations to this primary sub-team and be responsible for completing action items delegated to them. However, students are encouraged to join and participate in additional sub-teams, so long as they fulfill their obligations to their primary sub-team.

Sub-teams support the whole team in completing needed tasks, so that the team may function like a small business. Leaders will take note of students both achieving and underperforming on their sub-team and inform the mentors. This feedback may lead to the mentors warning students and their parents about their performance level and changing students' progress report grade (described under *Grades*).

VEX Captains are not on a non-technical sub-team as they each have responsibilities similar to the Team President for their VEX Team and thus will focus on coordinating all the non-technical aspects of their VEX Team.

The functions of each sub-team are listed below.

Programming and Controls

Members develop software for both FRC and VEX robots. Robots are programmed using advanced control algorithms in RobotC, C++, and Java. Sub-team members will also participate in other programming tasks separate from robot code that involve a multitude of languages such as Python, Javascript, Ruby, Arduino, Bash, etc. Members will also gain familiarity with Linux operating systems.

Graphic Design and Media

Members create sponsor decals for the robot, sponsor and competition awards, team apparel, merchandise, and publicity materials including banners, fliers, handouts, and displays. They are also responsible for supporting the Media needs of the other sub-teams and creating and maintaining the team's visual identity by upholding the identity standards and creating templates. Students on this sub-team also learn to use industry standard tools in the Adobe Creative Suite and other programs to create media materials for the team.

Documentation and Submissions

Responsible for all written content required by any of the sub-teams, this sub-team takes photos and video footage to document team events for use in animations, publicity materials, and award submissions. Members also create articles for the Bellarmine community and content for the team website. Members write and enter submissions for several FIRST and VEX awards such as the FIRST Chairman's Award and the VEX Excellence Award. They also write grant applications for sponsorship alongside the Business Development sub-team.

Public Relations

Members on the Public Relations sub-team are responsible for maintaining Team 254's identity and engaging our audiences through our online presence on our blog, Facebook, Twitter, Chief Delph, and other social media channels. The Public Relations sub-team is also responsible for ensuring that FRC, VEX, and team events are documented and publicized through our various online platforms.

Outreach

Members on this sub-team coordinate outreach events by working with other teams and community organizations. Members on the team mentor middle school VEX/FLL teams, volunteer at STEM events, and provide support to other FRC teams. Although members are expected to attend most outreach events, students not on the Outreach sub-team are encouraged to attend as well.

Web Development

Members maintain the team website to assist in public relations, communication, and to compete in website competitions. The team also develops and maintains web applications to assist with internal and external team functions.

Business Development

Members work to raise awareness about the team and attract new sponsors by creating donor materials and identifying and securing donors. They work with the Documentation and Submissions sub-team on writing grant applications, and with the Public Relations sub-team to identify potential donors. They also update the team budget, notifying the Finance sub-team of all incoming donations; generate a comprehensive business plan; and work with the Public Relations director to find and write grants to secure additional sponsorship. Finally, members plan sponsor recognition events with the Public Relations sub-team to maintain good relations with existing sponsors.

Finance

Members create and update the team budget, and track all purchased materials and equipment (for both VEX and FRC). The team helps create a comprehensive financial statement, maintain a business plan, and ensure the team stays within its budget.

Joining the Team

Team 254 is limited to approximately 100 student members to ensure maximum opportunity to participate. Approximately 65 members return from the previous year, and up to approximately 35 students not on the team last year also join. Membership is open to all students attending Bellarmine. Any interested and motivated student is invited to attend the “Open House” period between August 31st and September 12th by coming to VEX builds, talking with team members, and learning about all the aspects of the team. Students will then submit an application by September 13th describing their experiences during the open lab and why they want to be on the team. Decisions for admittance will be based on participation and enthusiasm of the student.

Members who are returning from the previous school year must submit an application. Decisions are based on the prior year’s progress reports, event attendance, dedication to the team, as well as the written application. Following the announcement of the team roster, students invited to return to the team must turn in the completed contract at the end of this handbook to a faculty advisor.

Students not accepted must wait one year before reapplying.

Eligibility

In order for students to be eligible to participate on the team, they must:

- Turn in the completed contract at the end of this handbook
- Maintain academic eligibility
- Comply with rules established in the Bellarmine handbook
- Participate with the team for the duration of the school year

Member Obligations and Opportunities

Team Dues

Due to the high cost of materials, registration, and other fees associated with robotics, each team member is expected to contribute \$120 annually for team dues. This is billed through the family’s Bellarmine account. In return, each student will receive two team t-shirts and a laser-engraved name-tag. Families financially unable to meet this requirement should contact a faculty advisor.

Meetings

Whole team meetings are held at 2:54 pm on Tuesdays in Andrade Theater. It is recommended that members attend all meetings. Other project groups may also have meetings as announced. Certain meetings will be declared “Critical Meetings” as a prerequisite for attending competitions or other events.

Mandatory Events

During the year, all team members are also required to attend the following events:

- Mandatory Returning Member Meeting – First Day of School
- Bellarmine VEX Tournament – Volunteer or Participant
- FRC Kickoff – Beginning of January

It is also highly recommended that students attend the Chezy Champs FRC Tournament held at Bellarmine College Preparatory during the FRC offseason.

The team leadership may announce other mandatory events during the year. Students who cannot attend a mandatory event should speak with a faculty advisor at least a week in advance of that event.

Communication

All members are required to have an active e-mail address that is registered with the team. They must also check it daily. All other messages will be communicated to members during weekly team meetings or posted on the team blog.

Team Website and Calendar

The team website is located at team254.com. All members must create a website account with the team and frequently use it to enter the Members Portal and check the Team Calendar.

Email Group

When a parent or member creates an account on the team website, that member will automatically be added to the team mailing list and will begin receiving email updates from Team 254. Only students who are registered on the website will receive team emails.

Team Blog

Team 254 maintains a blog on the team website that members are required to check daily throughout the FRC build season. Please read the blog before messaging a student leader for more information. More than likely, it will have already been posted on the blog.

Workshops

Throughout the year, workshops are held to teach the team needed skills. Members are encouraged to take advantage of them and attend.

Outreach

The team participates in numerous demonstrations and other outreach events during the entire year. This is a way to interact with and enrich the community. Outreach is important on Team 254, and attendance is not restricted to only those on the Outreach sub-team.

Grades

To recognize involvement, each member will receive a grade on their transcript. All members of the team are committed to remain on the team for both semesters.

Periodic Progress Reports

Periodically, a student will receive a base 18/20 points (an A-) for each Progress Report Grade. If a student is noticed to be underperforming (such as not attending builds, failing to complete sub-team action items), a mentor or faculty advisor will talk with them, understand the situation, and potentially lower their grade for that month. However, if a student does exceedingly well the next month, their grade can be raised to 19 or 20 points and help offset the previous grade.

Self-Assessment

Members must fill out a self-assessment each semester by following a structured set of questions and reflecting on their own performance on their primary sub-team and the team as a whole. Weaker participation will be reflected in their grade and their ability to return to the team in the future.

Final Grade

Final grades will be broken down into 2 weighted categories.

- 80% Accumulation of Monthly Progress Reports
- 20% Self-Assessment

Note that while members will sign in and out of the labs and hours will be recorded, they are for lab attendance and safety and have no direct impact on a student's grade.

General Information

Behavior

Team 254 expects that all members behave maturely and professionally at all times and comply with the standards of Bellarmine College Preparatory and NASA Ames Research Center. Members whose behavior is below the standards of Team 254 will face disciplinary action.

It is important that all team members remember that whenever they are engaged in a team-related activity, whether online or in person, they are representing Team 254. Their actions will reflect upon the team, our sponsors, and Bellarmine College Preparatory. Team members should treat

their teammates, members of other teams, and the general public with kindness and respect at all times.

At competition, those who are not members of Team 254 but are cheering for or representing the team in any way, such as parents and friends, must adhere to these guidelines as well.

Submissions & Publications

To maintain the team's high standards of quality and imagery, the leadership team must approve any documents or media pertaining to the team prior to their release. This includes award submissions, publicity materials, news articles, pictures, videos, and posts to social media or discussion forums.

Confidentiality

Team 254 prides itself on its competitive excellence and on being a source of inspiration and mentorship for other teams. The team shares ideas and design concepts with other teams and offers help to anyone who asks for it. However, the team believes that helping others work through the engineering process is much more effective than giving away fully-formed solutions and designs.

Members are not permitted to disclose any ideas, designs, documents, photos, or videos to anyone not affiliated with Team 254 without the explicit approval of the leadership team. Confidentiality is taken very seriously and is punishable up to dismissal from the team.

FIRST Robotics Competition (FRC)

The FIRST Robotics Competition is an advanced competition which begins in January and occurs for the remainder of second semester. The FRC team works together on a single robot design, with subgroups existing for each aspect of the robot. Members can participate in any part of the design or build process. No prior experience is necessary.

- FRC Build will occur for the duration of second semester and a portion of the first semester at the discretion of the leadership team.
- Build sessions will start after 5:30 during weekdays and after 1:00pm during weekends. Build will not occur on Mondays except at the discretion of the leadership team.
- Mentors and teachers will invite a subset of students returning from the 2014-2015 season to participate in FRC builds during the second semester. The remaining returning students will not be allowed to participate. All students new to the team who meet the participation requirements throughout the fall semester will be invited to participate in FRC during the second semester.

VEX Robotics Competition (VRC)

Challenges for the VEX competition are released in late April and the teams begin to build in August or September. Members can participate in any part of the design or build process. No prior experience is necessary.

All new members and interested returning members will be assigned to a VEX Team. If they have any questions or concerns about the assignment process, they should contact the leadership team.

- VEX build sessions will typically occur three days a week during the first semester, and two days a week during the second semester, however this is subject to change based on the discretion of team leadership and mentor availability.
- VEX builds will occur at the Bellarmine Robotics Lab.
- VEX robots will be built with parts and equipment owned by Team 254. All equipment and unused parts are returned at the end of the year. Teams are responsible for missing items.
- Every team must successfully pass a design review moderated by student leaders and mentors in order to begin building their robot. Furthermore, teams pass subsequent design reviews in order to perform major robot changes at the discretion of the VEX Technical Lead. It is the responsibility of VEX Captains to schedule design reviews.
- Each team must document their progress daily in an engineering notebook, which will be presented to judges at VEX tournaments.
- VEX Robots are to be fully built and programmed at least one week before a tournament in order for them to be eligible to compete. This is to ensure that VEX teams get at least one week of driver practice before a tournament. VEX teams are not allowed to make major robot changes during tournaments.
- Decals for VEX Robots must be compliant with the Identity Standards and approved by the Media and Graphic Design Director.

Facilities

NASA Ames Robotics Exploration Lab

Team 254's founding sponsor, the NASA Robotics Alliance Project, provides a large workspace at NASA Ames Research Center. Team 254 has an 80% size FRC practice field as well as a small machine shop, workspace, computer lab, and meeting area. NASA authorized identification badges are required to access the lab. For more information about the lab and badge access, see the team website.

Bellarmino Robotics Lab

Team 254's on-site robotics lab is located in Bellarmine's Liccardo parking lot. The lab features a machine shop area, two full sized VEX fields, eight workspaces, computer workstations, and a conference table.

Rules & Guidelines for Team Facilities

- No member is ever to work without a mentor or faculty moderator on site.
- Food and drink is allowed at team facilities only at the discretion of an adult mentor or faculty advisor. Members must use common sense when given permission to have food and drink.
- When finished using a tool, it must be returned to its designated location in the lab. At the end of every work session, all tools and materials must be put away.
- If a member leaves before a work session is over, that member must clean for at least fifteen minutes before leaving. Members must announce to a mentor when they begin cleaning for credit.
- Members are not allowed to leave the lab before notifying and signing out with a mentor or faculty advisor.
- If a power tool malfunctions or breaks, it must be reported to a mentor immediately.
- Electrical devices of any kind may never be powered by daisy-chaining cords or power strips.
- Always wear safety glasses and other pertinent safety equipment when operating power equipment or are near somebody who is operating power equipment.
- Loose hair and long clothing must either be tied back or removed before a member is permitted to use any machine tools.
- Members must partake in a robotics related activity if they are in the lab. If a member is caught not participating in build they will be asked to leave the lab. Horseplay and games will not be tolerated.
- All members must abide by the guidelines set forth by the Bellarmine transportation form. Any questions about a student's transportation status should be taken to a faculty advisor.
- Faculty, mentors, and NASA personnel always have the final word in any situation where safety is at stake. This is due to the hazardous nature of Robotics.
- All applicable rules of Bellarmine College Preparatory apply at the NASA lab or any place where robotics work is being done.

Failure to comply with the established rules will result in disciplinary action by adult team members and/or dismissal from the lab.

Identity

Team 254 is well known throughout the robotics community and has a very distinct identity associated with it.

Identity Standards

Team 254 has developed a set of comprehensive identity standards to help maintain and preserve our strong team identity. The policies outlined in the identity standards are binding and must be followed for all team appearances and communication. For more information, see the Identity Standards posted on the team website.

Dress Code

The dress code must be maintained at competition, all off-season events, and robot demonstrations. Maintaining the dress code is recommended on the school days before and after a robotics competition in order to raise awareness at school. For more detailed information, see the Identity Standards.

Photography and Media

All members must be willing to be photographed and appear in team-related publications.

Travel & Competition

Eligibility

Eligibility for overnight FRC tournaments is determined by the mentors. They will look at a member's performance throughout the semester. All members are encouraged to attend local tournaments.

Payment

Certain competitions require travel. This will require payment from members. Members will only be refunded if another member takes their spot. If cost is an issue, please speak with a faculty advisor as special arrangements can be made.

Roles & Responsibilities

Prior to competition, members will be divided into drivers, pit crew, scouts, and documentation. It is vital to the success of the team that members maintain the roles that they are given. When at competition, members are not permitted to engage in unrelated activities, such as homework or games. However, members are encouraged to watch matches, meet other people, and look at other team's robots.

Behavior

Behavior that is deemed below the standards of Team 254 will result in punishment by a faculty advisor or adult mentor. Severe infractions may result in an immediate flight or bus trip home at the expense of the team member, and/or dismissal from the team.

Transportation

Local Events

Several events such as FRC build, outreach, and other events within Santa Clara county may not have transportation scheduled by the team. For these events, it is the member's responsibility to arrange transportation.

NASA Lab

During FRC Build Season, rides will be arranged for most weekdays to the NASA lab by school bus, van, or licensed parents based on needed attendance. Members must sign-up for these rides. Students and parents are allowed to drive themselves to the lab with permission from Bellarmine.

Silicon Valley Regional (FRC)

A bus will take members from school to competition on Friday. Members who wish to attend Thursday and Saturday of competition must arrange their own transportation.

Long-Distance Tournaments

Bellarmino will arrange all transportation, but members are responsible for the cost and will be billed directly by Bellarmine. Students on financial aid will get assistance to pay for the travel costs, however, if they cancel, they must pay any cancellation fees. All student members must travel with the team. Members must sign up well in advance for all long-distance tournaments.

School Absences

If a member will miss school due to a robotics event, it is that member's responsibility to inform teachers of an absence at least one full week ahead of time and arrange for completion of missed work. That member must also fill out a planned absence form one week prior to the date of absence. If a student misses school due to illness, they may not attend any robotics function later that day. Students may not miss school after a tournament due to fatigue or postponed homework.

Team Leadership

Team 254 is managed by a leadership team consisting of student leaders, adult mentors, and faculty advisors. The leadership team's duties go beyond those of regular members. This team makes administrative decisions, plans events, and manages projects. Every member of the leadership team puts in hundreds of hours of work behind the scenes to ensure that the team operates smoothly.

Leadership Meetings

The leadership team meets weekly year-round. The students meet after school on Fridays for a mid-week action item update. All leadership meetings are closed to students not on the leadership team. However, students can approach members of the leadership team with relevant concerns.

Leadership Team Selection

At the end of each school year, a selection committee consisting of mentors, faculty advisors, and alumni will choose next year's leadership team. The selection process is based on previous leadership experience, dedication, expertise, and a written application. Leadership roles are modified every year.

Leadership Roles & Responsibilities

Team President

The team president is responsible for keeping team unity, making sure the leadership team functions as designed, running all team meetings, and being a team spokesperson.

FRC Technical Director

This leader oversees the overall robot design process and technical aspects of FRC as well as organizing workshops and ensuring that team members are adequately prepared for the season.

VEX Technical Director

This leader is responsible for organizing VEX build related activities, managing and organizing VEX Captains, and ensuring members get the most out of the technical aspects of VEX.

FRC Competition and Operations Director

This leader is responsible for FRC competition preparation including scouting, pit construction, transportation, meals, and participation.

VEX Competition and Operations Director

This leader is responsible for VEX competition preparation including scouting, pit construction, transportation, meals, and participation.

Programming & Controls Director

This leader and his sub-team responsible for the programming and electronic functions of FRC and VEX robots.

Media & Graphic Design Director

This leader and his sub-team create all publicity and robot related media and maintain the Identity Standards.

Business Development Director

This leader and his sub-team manage the team as a business by using a comprehensive annual operational plan, planning and securing funding from sponsors, and managing in-kind resources.

Finance Director

This leader and his sub-team are responsible for team part orders, business plan, and documentation of all incoming and outgoing grants, donations, and transactions.

Public Relations Director

This leader and his sub-team are responsible for maintaining and improving the team image, identity, and presence within the community, and maintaining the team's outreach program.

Documentation & Submissions Director

This leader and his sub-team are responsible for the creation and archiving of all team content including the website, recording of competition, award submissions, grants, and the team blog.

Web Development Director

This leader and his sub-team are responsible for website functionality, enhancements, and team databases. They works with the Documentation & Submissions Director to manage and maintain website content.

Director of Outreach

This leader and his sub-team are responsible for coordinating and organizing appearances and robot demonstrations at outreach events.

Contacting Leaders

If you are interested in working on a leader's sub-team, or have a question about work you are doing for that person, refer to the leaders page on our website at: team254.com/leaders.

Authority of the Handbook

The rules and policies set forth in this handbook are binding and must be followed by all team members. The handbook may contain appendices including the Team Identity Standards. These documents are binding as well. The leadership team has the authority to modify the handbook at any time. The team will be notified of any modifications. All students must acknowledge the Authority of the Handbook by signing the contract and form below.

Student Contract

By signing below I acknowledge and understand all points listed below:

- I have read the handbook describing Team 254: The Cheesy Poofs and agree to comply with the policies outlined within.
- Participation in the program requires attendance at mandatory events, and I will comply with the schedule of said events.
- The equipment used during construction of the robot can cause serious harm injury if not used correctly. I understand that members are not permitted to use any piece of equipment until they have been instructed on its safe use and are not permitted to use any piece of power equipment without adult supervision.
- As long as my parents have signed the Bellarmine liability release/consent form, I will only ride in a car driven by an adult mentor, faculty advisor, approved parent or student, or myself to any robotics function.
- I agree and consent to allow my photographs, name, or comments to appear in media related to Team 254.
- I understand that violation of any of the policies above is punishable up to and including dismissal from the team.

Student Name

Bellarmino Student ID

Email

Student Signature

Date

Parent Signature

Date

Transportation Liability Contract

	Yes	No
1) My son has permission to operate a family owned motor vehicle to and from any school sponsored activity inside Santa Clara County.		
2) My son may transport other students to and/or from any school sponsored activity inside Santa Clara County.		
3) My son may travel in a vehicle operated by a Bellarmine parent or guardian to and/or from any school sponsored activity.		
4) My son may travel in a vehicle operated by another Bellarmine student to and/or from any school-sponsored activity inside Santa Clara County.		
5) My son may ride in a privately owned vehicle operated by a faculty advisor or adult mentor to and/or from any school-sponsored activity.		
6) My son has permission to use public transportation while accompanied by a school official or to travel to or from any school sponsored activity.		
7) I, as a Bellarmine parent/guardian, am willing to drive my son and other students to a Bellarmine sponsored activity when my son or other students are participating in that activity.		

Student Signature

Date

Parent Signature

Date

*Note: This is not the Bellarmine Transportation Form, and is only for mentor reference.