the
Beak Squad

Student Handbook: 2019 – 2020 Season

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Who is the Beak Squad?

Our Team:

Welcome to the Beak Squad, Cincinnati Hills Christian Academy's competition robotics team--part of the *FIRST* Robotics Competition. We are students, teachers, mentors, and parents who collaborate to engineer and design complex robots which compete in exciting, field-based challenges. Since our founding in 2011, the Beak Squad has cultivated a passion for STEM and business pursuits in our members and aims to spread that passion to our community through the support of our FLL and FTC teams and various outreach events. We strive for excellence in everything that we do, encouraging *all* team members to engage their personal interests to continuously grow not only their own abilities, but the abilities of the team as a whole. In joining the Beak Squad, you become part of a rich history of success, both on and off the competition field. We welcome team members of all skill levels and interests who desire to grow, to achieve, and to be part of something much greater than any of us could achieve individually.

Our Mission:

The Beak Squad exists to provide students with experiences that will encourage and inspire them in scientific, technological, and business-minded pursuits. Through mentorship and example, we seek to bridge the gap between practical problems and creative solutions in the mind of each student. At the core of this effort is an emphasis on FIRST's values, recognizing that an attitude of perseverance and a passion for excellence will spur innovation. We strive not only to build robots but to build character in our future engineers, software developers, marketers, and inventors. We believe that investing in their potential to become effective leaders will ultimately become a driving force for a change in our community and culture.

Our Values:

Diversity
The Beak Squad allows its students to show their diversity of backgrounds and skill sets to take the team to the next level. This enables us to find new solutions to problems and empower our team members to see challenges from different perspectives.

Creativity
The Beak Squad provides innumerable outlets for students to express themselves and utilize their talents to contribute to the overall success of the team. We learn daily to embrace creativity.

Servant Leadership

The Beak Squad teaches its members to serve others for their love of God and their dedication to the FIRST program. At the core of this effort is an emphasis on Christ-like character, recognizing that an attitude of servant leadership will enable each of us to better serve our team and become valued members of our communities.

Excellence

Through mentorship and example, the Beak Squad seeks to bridge the gap between practical problems and creative solutions in the minds of every student and present our best product in every task that we are given.

Gracious Professionalism
The Beak Squad strives to provide experiential learning opportunities that teach students and mentors alike that helping allies and opponents compete at their best makes playing the game even more valuable.

Our History:

In **2011**, Mr. Andy Ciarniello and Mr. Adam Cool founded Cincinnati Hills Christian Academy's robotics team, FRC team 4028, at that time called "Eagle Robotics." With only 15 students and 2 coaches, we created our first robot, EleVader, for the **2012** FRC game, Breakaway.

At the Boilermaker Regional, we were selected for the #1 alliance. With our partners 1501, Team T.H.R.U.S.T., and 1756, Argos, we won the regional, qualifying us for the 2012 World Championships in St. Louis, Missouri.

In early **2013**, the team began a massive rebranding effort; through that effort, we renamed ourselves as "the Beak Squad," and created a new logo and nameplate to match our change. Buoyed by an influx of new students and mentor support, the Beak Squad fielded our robot, Discobolus, for the 2013 game, Ultimate Ascent. A strong focus on strategic analysis and robust design led to powerful performances at the Queen City Regional (Rank 17, Quarterfinalists) and the Crossroads Regional (Rank 5, Quarterfinalists). In the post-season, the Beak Squad won the first Ohio State Championship.

The **2014** season began with a focus on the Business and Branding Team, including additional rebranding efforts alongside our first submissions for the Chairman's, Woodie Flowers, and Entrepreneurship awards. Our robot, Atlas, competed in Aerial Assist at the St. Louis Regional (Rank 19, Quarterfinalists) and the Queen City Regional (Rank 9, Alliance Captain, Quarterfinalists).

The **2015** season saw a jump in capabilities for the team with the addition of mentors and sponsorship from Intelligrated. For the first time, the team extensively used Solidworks in the design of our robot, Baxter. Competing at the Central Illinois Regional

(Rank 10, Quarterfinalists), the Beak Squad won the Industrial Design award, the team's first engineering award. At the Queen City Regional, we advanced to the semifinals in the elimination tournament for the first time in the team's history. Given a waitlist slot at the World Championship in St. Louis, we ranked 17th in our division and were selected to be on an eliminations alliance. While in St. Louis, the team competed in the first FedEx Innovation challenge, taking 1st place and winning $15,000.

Our **2016** robot, Sasha, competed in the Stronghold game and was the most technically complex machine the team had created. It featured our first use of target vision tracking, majority sheetmetal design, and *Puma Drive*, our first fully custom chassis. In addition to being technically complex and extremely competitive, the machine (along with our upgraded pit setup) was the final piece of our years-long rebranding process, with paint and powdercoat creating a new standard of beautiful design. At the Buckeye Regional (Rank 4, Alliance Captain, Quarterfinalists), we earned an Innovation in Controls Award. At the Queen City Regional (Rank 5, Alliance Captain, Finalists) we advanced to the finals and earned a wildcard slot at World Championships, along with an Industrial Design Award. At the Championship, we ranked 19th, and advanced to the semifinals in our division. A win at the Ohio State Championship capped off our most competitive season so far.
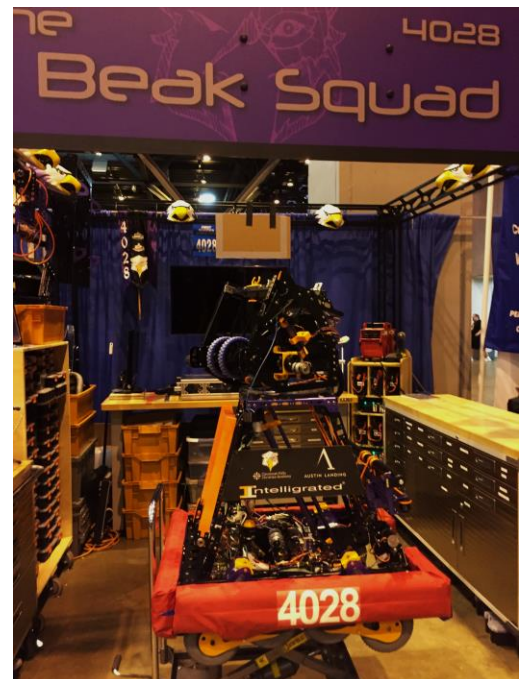
The **2017** season was highlighted by an enormous increase in student design capability with more than 80% of the parts on the machine being created by students. This, along with increased skills in vision-tracking and closed loop control allowed for another

complex and competitive machine, Sharkbait, to compete in *FIRST* Steamworks. The Greater Pittsburgh Regional (Rank 8, Alliance Captain, Finalists) led to another Finalist performance, wildcard slot at the World Championships, and the Innovation in Controls Award. At the Buckeye regional, we achieved rank 2 and were finalists, winning the Quality Award. In the Carson division at World Championships, we were selected by the 6th alliance and were quarterfinalists.

Having graduated our strongest Senior class to date, **2018** looked to be a "rebuilding" year. However, the team's underclassmen stepped up to meet the challenge of the game, *FIRST* Power Up. With our robot, Eclipse, we were able to continue to best our previous achievements, thanks in large part to world-class autonomous modes. At the Miami Valley regional, we advanced to the Finals, earning another wildcard slot at World Championships and Innovation in Controls Award. For the first time in team history, we were able to achieve Rank 1 at the end of qualifying matches of the Greater Pittsburgh Regional, also earning the Excellence in Engineering Award. At the World Championship in Detroit, we were selected as the first pick of the #1 seeded alliance in our division, advancing to the finals of our division, another first in team history. The autonomous team was rewarded for their extraordinary efforts throughout the season with

the Autonomous Award Sponsored by Ford, an award exclusive to the World Championship.

The **2019** season began with more than 15 rookie team members joining the Beak Squad to take on Destination: Deep Space. Our robot, Calypso, featured a fast, compact and lightweight elevator with a mechanism that could handle both gamepieces. The ability to fill rockets and quickly climb to all levels of the endgame platforms--all assisted by semi-autonomous sequences--led to strong results on the competition field. The team were finalists at the Miami Valley Regional and were awarded the Imagery

Award. At the Buckeye Regional, the Beak Squad captained the fourth-seed alliance to our first Regional win since 2012. In addition, the Creativity Award completed the team's Engineering Award Hexafecta, having been awarded all six engineering awards at one point in our history. After reaching the quarterfinals in the Curie Division at World Championships, the Beak Squad captained the second-seed alliance to a win at the WOW Alliance Championship.

What is FIRST?

About FIRST:

FIRST is an acronym for "**F**or **I**nspiration and **R**ecognition of **S**cience and **T**echnology". It was founded in 1989 by inventor and entrepreneur Dean Kamen. *FIRST* is now well known as the leading, non-profit stem engagement program for kids and young adults all around the world. *FIRST* has a short list of some of their core values including: Discovery, Innovation, Impact, Inclusion, Teamwork and Fun. However, *FIRST* isn't only about robots. In the words of founder, Dean Kamen, "*FIRST* is more than robots. The robots are a vehicle for students to learn important life skills. They leave, even after the first season, with a vision, with confidence, and with a sense that they can create their own future."

For more information, visit https://www.firstinspires.org

FIRST's Mission:

The mission of FIRST® is to inspire young people to be science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

FIRST Robotics Levels:

FIRST LEGO League Jr: It's never too early to discover STEM. FIRST LEGO League Jr. is designed to introduce STEM concepts to kids ages 6 to 10 while exciting them through a brand they know and love − LEGO®.

FIRST LEGO League (FLL): Tomorrow's innovators practice imaginative thinking and teamwork. Guided by two or more adult Coaches, FIRST LEGO League teams (up to 10 members, grades 4-8**) research a real-world problem such as food safety, recycling, energy, etc., and are challenged to develop a solution. They also must design, build, program a robot using LEGO MINDSTORMS®, then compete on a table-top playing field.

FIRST Tech Challenge (FTC): It's way more than building robots. FIRST Tech Challenge teams (10+ members, grades 7-12) are challenged to design, build, program, and operate robots to compete in a head-to-head challenge in an alliance format.

FIRST Robotics Competition (FRC): Combining the excitement of sport with the rigors of science and technology. We call FIRST Robotics Competition the ultimate Sport for the Mind. High-school student participants call it "the hardest fun you'll ever have."

How Does the Beak Squad Help Me?

The Beak Squad develops your **design**, **programming**, **business, branding** and, most importantly, **leadership** skills. Members of our team have the privilege of working alongside teachers and industry professionals on solutions to many complex and interesting problems. You will develop your **teamwork** because, to achieve excellent results, every team member must pull their own weight and trust that others will do the same. In a fast-paced environment, you will learn how to work within sub-teams and across team divisions. At sponsor presentations, outreach events and competitions, you'll develop your **communication** skills by learning how to explain complex technical solutions to many different audiences with diverse backgrounds. These experiences will give you a leg up for the college admissions process: alums have been accepted to prestigious universities all over the country and have been awarded over $200,000 in **scholarships** as a direct result of their hard work and leadership on the Beak Squad.

How Can I Help the Beak Squad?

Leadership: Develop and use leadership and organizational skills to ensure that every member of the team is learning, growing, and contributing their very best every day

Design and Build: Develop and use your skills in best practices of mechanical design and SolidWorks to help design and build a robot.

Code: Develop your programming skills to make the robot move, see and aim at targets.

Communications: Communicate to others in the school and community about the Beak Squad by working on our website and posting on our social media. Keep the team organized and informed by helping with intra-team communications.

Video Editing: Create exciting and engaging videos to tell the story of our team, our robots, and our other exciting activities.

Strategy: Enable successful matches and tournaments by gathering and analyzing data to determine the best way to approach individual matches and alliance selection.

The Sub Teams

Business and Branding:

The Business and Branding sub-team is responsible for running the team like a business. From our team branding, social media managing, video creation, managing team finances and budget, maintaining sponsor relations, and community outreach, the Business and Branding team is made up of creative students with a wide variety of roles, skills, and talents. This sub-team is perfect for students interested in pursuing a career in business management, entrepreneurship, writing, graphic design, website design communications, social media, or video producing. If you are interested in these areas but have no experience, no problem! The Business and Branding mentors are equipped to teach you all the tools you need to be a successful member of the team.

Below is a list of roles for different members of the Business and Branding sub-team. See the appendix for a detailed description on the responsibilities for each role. Don't see a role listed but think it could help the Beak Squad? Talk to a Business and Branding mentor about adding it to the team! We are always looking for ways to bring student's passions and skills to life.

- Graphic Design
- Website Designer
- Video Producer
- Social Media Manager
- Sponsor Relations
- Community Outreach
- Financial Supervisor
- Awards Advisor
- Team Photographer

Electrical and Controls:

The electrical and controls sub-team's goals include writing any necessary code and performing the wiring on the robot to bring it to life. We typically all share in wiring responsibilities (even though older/more experienced students are often coaching newer students on wiring practices). In terms of coding, those who are passionate and prepared will be given control over sub-systems and be responsible for all the necessary coding to make that part of the robot work.

The controls team codes the robot using Java but other projects are in different languages (such as HTML, JavaScript, CSS, and Swift). To edit the code, we use Visual Studio Code and Github to make collaboration easier and more efficient. Any prior knowledge on these programs is great, but we offer training for those who are new to programming. Typically, in said training, new students work one-on-one with mentors

or experienced students to work through challenging coding problems or wiring procedures.

As stated below in the Mechanical Design sub-team description, collaboration between Electrical and Controls and Mechanicals sub-teams is vital to the function of the team. This can be something as simple as splitting time in working with the robot or as complex as designing the robot with wiring in mind. It is vitally important for there to be communication between the two sub-teams, so those who are interested in having a role on both teams will certainly be able to find that role.

As stated above, there is some basic information that we wish for every member on the Electrical and Controls. This involved wiring the robot and be able to write basic controls in Java for robot function. This however is not the only role available to those who join this sub-team. Whatever you are passionate about as a student, our mentor and more experienced students on the sub-team will work to help you to pursue your passion. Below are examples of current extra projects:

- iPhone coding to enhance robot performance
- LED indications for robot function while on the field
- Custom drive station interface and controllers
- Custom motor testing boards

In constantly evolving and improving how we function as a sub-team, the Electrical and Controls sub-team requires a certain level of flexibility. Members expect to be constantly learning how to improve their current skills and expand their current knowledge.

Mechanical Design:

The mechanical design sub-team's ultimate goal is to deliver a robust and reliable machine with features that allow it to achieve the objectives laid out by the strategy team at the beginning of the season. We break the machine into subsystems and divide responsibilities among the mechanical team members, allowing small groups of students and mentors to focus on creating a specific machine feature.

The mechanical team heavily relies on Computer-Aided Design (CAD) software, SolidWorks, to take the machine from a rough concept to a detailed design. In addition to lessons taught by mentors, students will have access to online lessons from SolidProfessor to learn SolidWorks. Students and mentors work side-by-side to create parts and assemblies with students taking on greater responsibility for drawing in SolidWorks as they gain skills and experience.

As features of the robot get designed, they will be manufactured either in-house or at a sponsor. When parts come back from manufacturing, they will get assembled and tested. Designs are frequently optimized as issues get discovered during assembly and testing to achieve an excellent product!

Of critical importance is collaboration between the Mechanical and Electrical and Controls sub-teams. The mechanical team is responsible for creating mounting locations for controls components and ensuring that the electrical team has wire pathways for neat and easily maintained wiring.

The mechanical team works with industry-standard components and has the privilege of being able to design for state-of-the-art laser cutting and forming of sheet metal. The team also has access to several 3D printers for rapid prototyping and creation of production parts.

Strategy and Scouting:

The scouting and strategy team has two main goals to achieve at competitions. The first of these is to provide the drive team with the data they need to create a match strategy to ensure optimum performance of our alliance. The second of these is to gather enough information to make informed decisions on which robots to pick during alliance selection.

To do this, we use scouting software known as FIRES to gather the data we need for every team, so we can understand strengths and weaknesses. In addition, this equips the drive team with the data they need for match strategy.

Any member that is not part of the pit crew or drive team is on the strategy team for competitions to aid in data collection. For each match there are 6 robots on the field, which are scouted most efficiently by 6 people, 1 per robot. To delegate the workload, we use as many people as possible.

While the Strategy and Scouting team has its main role in competitions, there are other responsibilities outside of competition. These include training, an optional weekly scouting meeting to shape the FIRES software, and pre-scouting teams we will meet at future competitions.

Mentor Leadership

Andy Ciarniello - Head Coach/Drive Coach/Mechanical Team

- CHCA Physics Teacher and Robotics Director
- The once and future Dad

Derek Rice - Assistant Coach, Logistics Guru

- Asst. Vice President, Learning & Development, Cincinnati Financial Corp.
- Expert on Roadside Trailer Tire Changes

Justin Zimmer - Lead Mechanical Mentor

- Director of Engineering at Honeywell Intelligrated
- Highest proficiency in memery

Tom Bruns - Lead Electrical and Controls Mentor

- Principal Enterprise Architect, WorldPay
- Lover of state machines and unaligned squiggly brackets

Rebecca Dile - Business and Branding Team

- Office Administrator, AluChem
- Chief Executive in Charge of Team Flag Development (Thanks Mom!)

Justin Croop - Mechanical Team

- Mechanical Engineer, Product Development at Honeywell Intelligrated
- Expert in SolidWorks file management techniques

Erica Wuennemann - Mechanical Team

- Full Time Mechanical Engineering Student, University of Cincinnati
- Beak Squad Alum, 2018
- A lover of lemonaaaade

Student Leadership

Student leaders are essential to maintaining and improving team performance and culture. We coach every student on leadership and, as they develop those skills, place them in leadership roles based on their skills and passions.

Students nominate and mentors select Team Captain(s).

Captain/Co-Captain Expectations:

Team captains are the heart of the team and focus on the overall health of the team. In partnership with the mentors, they ensure that all aspects of the team are working well and achieving our mission. To achieve this, the Team Captain(s) will:

- Attend all leadership meetings (at least 1 per week) to help set the direction of the team and execute on specific deliverables discussed in those meetings. Captain(s) will have input on all team-level decisions such as competition selection and scope of work.
- Lead "all-team" meetings.
- Monitor student availability and track attendance.
- Ensure monthly team bonding events are organized, scheduled and communicated.
- Be the owners of the awards submission process.
- Draft weekly parent communications.
- Mange sponsorship and fundraising goals.

Below is a selection of other leadership roles available. In a given season, these roles will be assigned by team captains and/or mentors and may be shared among multiple students while others are vacant.

- Mechanical Sub-team Lead
- Controls Sub-team Lead
- Business and Branding Sub-team Lead
- Strategy Sub-team Lead
- Pit Crew Chief
- Drive Team
- Leaders of smaller critical tasks (Autonomous, bumpers, awards writing, etc.)

Leader Expectations:

- Lead by example
- Drive continuous improvement in process and results
- Identify new outreach and sponsorship opportunities
- Ensure all team members achieve their full potential
- Acts as a point person for team members who hope to begin new projects or need help on their current assignments

- Champion a culture of learning, encouragement, and support (and some fun :))

Application Process:

If a student wishes to hold a leadership position , they should notify Mr. Ciarniello and at least one other mentor, stating why they want to be a leader, what roles interest them and why they believe they would be a good fit for those roles. After applying, team captain(s) and mentors will discuss the candidates and will meet with the students to inform them of their decision.

Team Expectations

Attendance:

To be a member of *any* team, you need to attend the events and meetings! We understand students have various other commitments, whether it be schoolwork or other extra-curricular activities, and are willing to work with students to find a schedule that allows them to be a contributing member to the team while maintaining a healthy balance for their other activities. Our schedule varies based on the time of year and will be as follows for the 2019-2020 season. *Please note there are different attendance requirements depending on which part of the season the team is in!*

Pre-Season (Sept. - Dec.):

Thursdays 4:30pm - 8:30pm; transportation from school to HQ provided, dinner provided

Saturdays 9:00am - 1:00pm; lunch NOT provided

To be an active member of the Beak Squad, you must attend at least one meeting a week during the pre-season. There will be other mandatory events during this period, such as mock kick-off, sub-team specific training, the FLL tournament, volunteer work, etc. These events will be communicated with the team at least two weeks in advance and attendance is expected.

Build/Competition Season (Jan. - April):

HQ will be open for meetings Monday - Thursday 4:30pm - 8:30pm and Saturdays 10am - 4pm. 1 meal/meeting will be provided

Minimum requirements to be on the team: ~10 hours per week (i.e. Saturday + 1-week day)

Minimum requirements to travel to competition: ~14 hours per week (i.e. Saturday + 2-week days)

Due to the differences in sub-team roles and responsibilities, it makes more sense for students to attend most meetings while some students attend at least the minimum requirements to accomplish their tasks.

Off-Season (May - August):

Thursdays 4:30pm - 8:30pm (no meal provided)

Saturday 9:00am - 1:00pm (no meal provided)

Students wishing to be considered for a leadership position during pre-season and build season are required to attend 75% of the off-season meetings.

Attendance at all meetings will be tracked to make sure minimum attendance requirements are met.

Mandatory Events:

All members are required to attend these events. If students have any conflicts, they should discuss those with a mentor at least a week in advance. Other mandatory meetings and events may come up during a season. These will be communicated to the team at least two weeks in advance. Below is a list of mandatory events that happen yearly:

- o Kick-Off
- o Stop Build/Bag Day
- o FLL Tournament (volunteering)
- o Mock Kick-Off
- o 2 Outreach Events
- o Team Building Events

Excused Absences or Exceptions to Attendance Rules: If a student cannot make the above listed commitment hours, we will make exceptions for events or situations that cause extended leave from the team. These situations will be handled on a case-by-case basis. A student in this situation should discuss this with a mentor to determine if their absences are excused.

If a student cannot meet the necessary hours for one part of the season but meets or exceeds the necessary hours for another part of the season, the student could still be considered an active member of the team. The student should discuss their situation with a mentor to figure out the best attendance requirements for their situation.

The team uses TeamSnap for communicating schedule and tracking attendance. You MUST inform a lead mentor (preferably from your sub-team) AND input attendance information on TeamSnap. If you do not list your attendance in TeamSnap, but still show up to the meeting, you are responsible for your own meal. During the pre-season and build season, parents provide food for the team and they use TeamSnap to determine how many they should plan to feed.

- 5 missed meetings unannounced/not communicated → no travel to next competition
- 10+ missed meetings unannounced/not communicated → off team

Communication:

Student attendance will be documented on TeamSnap prior to each meeting. Each student must input their attendance for each meeting; accept for attending, decline for not attending. Note: if you are unable to make a meeting, you must list an explanation. If you are unsure if you will be able to attend, you may select the "maybe" option, but you MUST ALSO list a reason as to why you are unsure if you will be able to attend in

the "availability" section. Listing a "maybe" with no explanation will be counted the same as if you did not list your availability in TeamSnap. Attendance will be locked 48 hours before each meeting; input your attendance *before* it is locked!

GroupMe will be used for team-wide communication about meetings, events, and during competition. It is expected for all students to use GroupMe for full team and sub-team communication.

If something comes up last minute that changes your meeting availability, please communicate that change with a mentor via GroupMe.

Academic Standing:

To be eligible to attend meetings and competitions, a student must:

> Earn a passing grade in all enrolled courses.

> Earn a minimum 2.0 GPA for the current grading period.

> Meet minimum community service hour requirements as defined by SOS.

Eligibility will be checked mid-quarter and at the end of each quarter. The Beak Squad places the highest priority on academic achievement and if parents choose to set higher standards for eligibility, the Beak Squad will support them in that choice.

Behavior and Expectations at Regular Meetings:

Members should be helping the team succeed to achieve our goals. If they are not actively working towards a team objective, they should be working to grow their own skills, always being productive and using their time wisely. Listen to, learn from, and respect the mentors.

Behavior and Expectations at Competitions:

When at a competition, every team member should represent the Beak Squad mission and values at all times. While all team members have different roles during a competition, they should always be where they are supposed to be. Respect and listen to the mentors. Cheer and be supportive of the team. Wear Beak Squad apparel in the arena.

Outreach Requirements:

The Beak Squad participates in various outreach activities for the school and community. These events include hosting and FLL tournament, Homecoming Extravaganza, and demos at local schools. Each team member must participate in 75% of all outreach activities, including the FLL tournament which is a mandatory event. Service hours can be earned for participation in these events. More details on the Beak Squad's outreach events will be communicated with the team when appropriate.

Team Tryouts:

The fall **Preseason** will be used as a tryout to be on the **Competition Team**. Students will be evaluated throughout the preseason by mentors on qualities such as attitude, contribution to team culture, willingness to learn and attendance. Students will be periodically given status updates so that there are no surprises when Competition Team selections are made in December at the end of the Preseason.

Fit with the team is a key criterion for team membership. While talent is great, how a person interacts with the team is just as important.

- o A student's fit will be evaluated on the following:

  - **A positive, team first approach.** All activities and interactions are performed with what is best for the team in mind. Words and actions are positive and help build comradery within the team. The individual DOES NOT engage in behavior destructive to the team.
  - **A willingness to learn.** The individual engages with mentors and senior team members to learn roles and responsibilities. The individual makes consistent progress over the pre-season period.
  - **Attendance.** See above section for attendance requirements.

How Do I Join the Beak Squad?

If you are interested in joining the team, contact Mr. Ciarniello either in person or via email (andy.ciarniello@chca-oh.org), then come to a team meeting (see **Team Expectations** for schedule and location info) to confirm that you are interested in joining. To become an official member of the team, complete the student contract below, sign up in Ultracamp (https://www.ultracamp.com/info/upcomingsessions.aspx?idCamp=312&campCode=chc&lnkCategory=Extracurricular+Activities), and sign up with *FIRST* (https://my.firstinspires.org/AccountManager/Account/Register).

<u>Student Contract</u>

I, (student), have read and reviewed the handbook in its entirety and agree to comply to the terms and conditions of the handbook. Failure to comply with these could result in disciplinary action, including dismissal from the Beak Squad.

X_____

Key Terms and Definitions:

Pre-Season: This is the period of time between the start of school and kickoff in the first week of January.

Kickoff: The first Saturday in January where the competition is released.

Build and Competition Season: Build season is the 6 weeks after kickoff where we can build the robot to compete with. After these 6 weeks the robot is put into a bag. We cannot make any physical changes to it until competition, but by building a practice robot, identical to the first one, we can still develop code and make minor mechanical adjustments during the next 8 weeks, known as competition season. We go to two regionals during this time in hopes of qualifying for the world championships.

Off-Season: This is the time period between Competition Season and the Preseason.

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: *FIRST*'s word for cooperating with those who you are playing against in order to get advantages for all teams.

FLL: FIRST Lego League. These are smaller robots made of legos for 4th-7th graders on the Beak Squad.

FTC: FIRST Tech Challenge. These robots are larger than FLL Robots but significantly smaller than FRC Robots for 7th and 8th graders on the Beak Squad.

FRC: FIRST Robotics Competition. These robots are the largest of the three organizations and is the part you are joining if you are reading this. For 9th-12th graders on the Beak Squad.

Regional: These are competitions we will be going to for the foreseeable future. There are qualification matches to get ranked. The top ranked teams go and pick their partners for eliminations. The three robots on a winning alliance as well as the captain of the finalist alliance go to Championships.

Robot HQ: Where we work, the office space at Phillips Edison. 11501 Northlake Drive, Cincinnati, OH 45249

SolidWorks: CAD program the mechanical team uses to design the robot.

Java: The coding language the robot runs on.

TeamSnap: The App the Beak Squad uses to track attendance. You update your availability, so parents know how many people they need to bring dinner for on any given night.

GroupMe: A group messaging service that lets us communicate as a team and within sub-teams.

Bag Day: This is the last day of build season, in which we usually stay until midnight in order to finish the robot. At the end of the night, we must put it in the bag and not open it until competition.

Appendix:

Business and Branding Team Roles and Responsibilities

Below are a list of roles and responsibilities for different members of the Business and Branding sub-team. Don't see something listed but think it could help the Beak Squad? Talk to a Business and Branding mentor about adding it to the team! We are always looking for ways to bring student's passions and skills to life.

Graphic Designer: Responsible for designing and creating t-shirts, buttons, stickers, handouts, and other supporting media for the team for publicity, community events and competitions. Students will learn to use industry standard programs such as Photoshop, Adobe Illustrator, and other programs to create various media assets for the team.

Website Designer: Responsible for creating, designing, and maintaining the Beak Squad's website. The team uses the website to share team updates and achievements with the community and sponsors along with being a source of information for potential students, mentors, and sponsors to learn more about becoming part of the Beak Squad. Students will learn html and other website design languages.

Video Producer: Script, direct, and edit various promotional videos for the team. Each year, the team releases at least two videos--a robot reveal video released after bag day, and a highlight video summarizing the team's performance at the end of the season. However, the team is interested in generating additional videos about our team, such as sponsorship and weekly build-season update videos. Students will learn industry standard tools like Adobe Premier and will have access to high quality filming equipment.

Social Media Manager: Responsible for maintaining and posting on the team's behalf across Twitter, YouTube, Snapchat, Facebook, and/or Instagram. Students in charge of social media will need to work with other members of the team to obtain team updates, graphics, and other media for posting on social media. They will also be responsible with keeping up with updates during competitions and interacting with other teams in a positive way on social media. Students will learn how to use various social media platforms along with organizational programs for maintaining a consistent team message and brand identity across all platforms.

Sponsor Relations: Responsible for maintaining positive relationships between the team and our sponsors. Many of our sponsors are connected to the team via our mentors. Therefore, students in this role will need to work with those mentors to ensure updates are being provided to our sponsors. For sponsors with no mentor connection, students will be in direct contact with the sponsors, building relationships and creating a network with various industry leaders who are current sponsors or potential sponsors. Through their interactions with these leaders, students will learn networking and business communication skills as they expand the team's and their own network.

Community Outreach: Responsible for planning, organizing, and executing community outreach activities for the team. As a FIRST team, we are responsible for sharing STEM and business skills to our community and bringing awareness to the many opportunities students can find in theses areas. As a member of the Greater Cincinnati area, we want to make sure our community is a fun and safe place where everyone can learn and thrive. Outreach also doesn't only happen at home, it can take place anywhere! Students in this role will learn management and organization skills as they build team and personal connections with members of our community, and others across the globe. Community outreach activities also count as service hours for CHCA.

Financial Supervisor: Responsible for working with the other sub-teams to create the team budget and making sure the team sticks to that budget. They will be responsible for discussing team financial status with the lead mentors and coming up with strategies for the team to stay within budget. Students in this role will also be responsible for creating a business plan for aiding the team in generating additional funding to ensure the team is financially stable not just for one year, but for many years to come. These students will work closely with the Sponsor Relations students to create and execute a plan on obtaining new sponsors and maintaining current ones.

Awards Advisor: Responsible for the creation, or enlisting other students for the creation, and submission of various team awards each competition season. This involves understanding what information is needed for each award the team decides to submit for and organizing the team to complete and submit the awards. Award requirements are listed every year on FIRST's website. Students will develop their writing and documentation and presentation skills.

Team Photographer: Responsible for capturing, editing, organizing, archiving, and sharing team pictures. Students will need to capture the team's activities not only at competitions, but also during team meetings and team events. Students will learn industry standard photoshop skills and have the opportunity to show off their creative side.

A Day as a Business and Branding Member:

During a typical meeting - Each student's days will look different depending on the student's role on the team. Sometimes, students do not need to be present at HQ for every meeting because it is more productive for students to work on their own time elsewhere. Business and Branding students are still required to be present at all required team meetings and must meet the minimum attendance requirements, however they are more free to work on their own time, so long as tasks are being completed and deadlines are being met.

During a competition - Each student's role at a competition will look different depending on their team role. Students involved with awards will be responsible for talking to judges in the pits. Students involved in social media will be responsible for

updating our social media platforms. A more detailed description of each Business and Branding sub-team members' roles at competition will be discussed with them prior to attending a competition.