

The Constitution of Columbia University Formula Racing

This document is the 2021-22 Constitution of Columbia FSAE.

The function of this organization is to design, build, and drive Formula SAE race cars in international annual competitions. Our mission is to educate and develop the next generation of engineers and leaders for a sustainably driven future.

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Article I. Name

Section 1. Club Name

The name of this organization shall be Columbia University Formula Racing.

Section 2. References

The officers of Columbia University Formula Racing shall make up the Executive Board of Columbia University Formula Racing, hereafter referred to as the "EBoard."

Article II. Purpose

Section 1. Purpose

The purpose of this organization shall be to design, build, and drive a Formula SAE racecar while educating its members, developing strong teamwork skills, and building community.

Section 2. Methodology

The EBoard shall do their best to design the safest, most efficient vehicle they can while ensuring the safety of all team members. They will make overall design decisions and manage resources accordingly along with making sure that being on the team is a good learning opportunity for all. They will make every effort to maintain and expand the membership base along with encouraging team members to build and design for the competition in a fun and inclusive way.

Article III. Officers

Section 1. Roles

The following roles shall be officers of the EBoard:

- President
- Chief Mechanical Engineer
- Chief Electrical Engineer
- Vice President of Technical Operations
- Vice President of Business Affairs
- Controls Assistant Chief
- Fluids Assistant Chief
- Dynamics Assistant Chief
- High Voltage Assistant Chief
- Low Voltage Assistant Chief
- Mechanical Engineering Treasurer
- Electrical Engineering Treasurer
- Secretary
- Social Chair

Section 2. Duties

EBoard Positions & Responsibilities:

President – The President is responsible for managing the operations and resources of the club, making major strategic decisions, and being the main liaison between the EBoard and the school's administration. The President oversees the administrative branch which manages competition, funding, record keeping, recruiting, membership management, and ensures nothing impedes engineering progress.

Chief Mechanical Engineer – The Chief Mechanical Engineer oversees engineering decisions related to the mechanical systems on both the IC and EV car. They oversee all engineering strategies, deadlines, purchases, and engineering recruiting along with the President. The Chief Mechanical Engineer directly manages the Dynamics, Controls and Fluids Assistant Chiefs.

Chief Electrical Engineer – The Chief Electrical Engineer oversees engineering decisions related to the electrical systems on both the IC and EV car. They oversee all engineering strategies, deadlines, purchases, and engineering recruiting along with the President. The Chief Electrical Engineer directly manages the High and Low Voltage Assistant Chiefs.

Vice President of Technical Operations – The Vice President of Technical Operations (VP-Operations) assists the President with managing deadlines, record keeping, recruiting, competition, and funding. The VP-Operations works with the chief engineers to maintain engineering and competition deadlines as well as to ensure all engineering designs are compliant with the rules of the FSAE competition.

Vice President of Business Affairs – The Vice President of Business Affairs (VP-Business) assists with finding sponsorships, recruitment logistics (e.g. organizing, obtaining funds, registration, etc.), managing the non-technical subteams, and managing the club's presence on Social Media and on campus. This will require working with the Social Chair, Vice President of Technical Operations, Business Team, and Social Committee.

Fluids Assistant Chief – The Fluids Assistant Chief is responsible for managing Fluids subteams and working with each subteam lead to ensure deadlines are met and that engineering design is cohesive across subteams. The Fluids Assistant Chief reports to the Chief Mechanical Engineer and is responsible for Fluids recruitment content.

Dynamics Assistant Chief – The Dynamics Assistant Chief is responsible for managing Dynamics subteams and working with each subteam lead to ensure deadlines are met and that engineering design is cohesive across subteams. The Dynamics Assistant Chief reports to the Chief Mechanical Engineer and is responsible for Dynamics recruitment content.

Controls Assistant Chief – The Controls Assistant Chief is responsible for managing Controls subteams and working with each subteam lead to ensure deadlines are met and that engineering design is cohesive across subteams. The Controls Assistant Chief reports to the Chief Mechanical Engineer and is responsible for Controls recruitment content.

High Voltage Assistant Chief – The High Voltage Assistant Chief is responsible for managing High Voltage subteams and working with each subteam lead to ensure deadlines are met and that engineering design is cohesive across subteams. The High Voltage Assistant Chief reports to the Chief Electrical Engineer and is responsible for High Voltage recruitment content.

Low Voltage Assistant Chief – The Low Voltage Assistant Chief is responsible for managing Low Voltage subteams and working with each subteam lead to ensure deadlines are met and that engineering design is cohesive across subteams. The Low Voltage Assistant Chief reports to the Chief Electrical Engineer and is responsible for Low Voltage recruitment content.

Mechanical Engineering Treasurer – The ME Treasurer is responsible for funding and management of purchases, with special attention and familiarity towards the MechE department. Communication with the MechE team advisor must be maintained to ensure approval on purchases. The Mechanical Engineering Treasurer ensures budget is met, purchase documentation is kept, and that large purchases are correctly approved.

Electrical Engineering Treasurer – The EE Treasurer will be responsible for funding and management of purchases, with special attention and familiarity towards the EE department. Communication with the EE team advisor must be maintained to ensure approval on purchases. Otherwise, responsibilities are the same as the MechE treasurer.

Secretary – The Secretary ensures that events, meetings, and deadlines are communicated effectively to the rest of the team. This requires managing the team calendar, mailing list, email, and documentation. The Secretary shall also assist with administrative needs as directed by the President and VP-Operations.

Social Chair – The Social Chair shall oversee the development of the Club's culture and is responsible for organizing social events and overseeing all social media. The Social Chair shall also assist with recruitment and other administrative needs as directed by the President and VP-Business.

HR (Human Resources) Responsibilities:

Taking complaints: through anonymous form, verbally, written communication; complaint should also include requested action to resolve said complaint.

Documentation: closed HR folder containing survey results from anonymous form and any other information related to HR complaints.

Intervention: with members who violate club misconduct policy or receive complaints to HR. Intervention may include, but is not limited to, verbal discussion with subjects of HR complaints, conversation with member's supervising officers, and initiation of the membership review process.

Confidentiality: any information disclosed to HR is kept confidential within the members who have agreed to take on the HR responsibilities.

- Must ask for consent of the club member who submitted said complaint to disclose to the rest of EBoard and/or club.

- If demanded action requires EBoard involvement (ex. Initiating membership review), EBoard must be notified of said complaint, but the club member can choose to provide their name or remain anonymous.

Section 3. Elections

Elections will be held in mid-April. Candidates will have the opportunity to speak and answer questions. Candidates must be given the same amount of time to speak and answer questions. Candidates will exit the room while voting occurs. In the event that there is only one candidate there will be no vote. In the event of a tie, the EBoard will tie-break. In the event of no candidates, the EBoard is required to find someone willing and capable to fill the role by the end of Competition. In the event of unexpected vacancies, the EBoard is responsible for filling vacant positions as soon as reasonably possible. The procedure for EBoard appointment in this case is left up to the discretion of the EBoard, with the following options serving as suggested procedures:

- Special Election: Active club members are given the opportunity to nominate themselves and run for the vacant EBoard position. The election structure follows the same format as that of general club elections.
- Internal Appointment: An existing EBoard member takes on the vacant position with confirmation done by majority EBoard vote. The newly vacated position must also be filled within a reasonable timeframe.

Section 4. Impeachment

Officers that are unable to effectively carry out their responsibilities as stated in the Club Constitution or who are found to be violating the Club Constitution or Columbia Student Handbook can be removed from his or her position. The President will preside over the impeachment meeting and procedure. If the President is being impeached, the Chief Engineers will preside over the impeachment.

The individual seeking to impeach an officer must meet with the President (or Chief Engineers if the President is the subject of impeachment) and write a formal letter detailing the grievance and reason for impeaching the officer. If the grounds for impeachment are valid then the impeachment process will ensue. The President (or Chief Engineers) will notify the officer being impeached. The impeached will be provided with the opportunity to defend themselves at the next general body meeting with a five minute defense followed by five minutes of Q&A. All members aside from the impeached will vote and the results will be tallied by the EBoard. A 60% majority with above a 50% turnout is required to impeach the officer.

Article IV. Membership

Section 1. Membership Form

New members interested in joining the club must fill out a membership form indicating their commitment to the team as well as the systems that they are interested in working on. They will also review and agree to the Club Constitution and policies. This form will be available year round. They will be assigned to an initial subteam accounting for preference as much as possible and may rotate to 1-2 additional subteams during their

first few months. Following the rotational period the new member will join a subteam that best suits the member's interest and team's needs. Returning members in good standing will be required to fill out a system interest form at the end of their previous year indicating the system(s) that they wish to work on for the upcoming year.

Returning members do not need to fill out an application, however they must fill out the returners form indicating their continued commitment to the team and acknowledgement of Club policies. At this time they may also indicate systems they are interested in moving to if they did not fill out the end of year system interest form. System transfers will be approved as needs allow by the relevant assistant chief and subteam lead.

Section 2. Responsibilities

Team members are responsible for completing their projects by the established deadlines as well as participating in necessary meetings unless a reasonable excuse is given. All members are expected to attend General Body Meetings unless a reasonable excuse is given beforehand. They are also expected to be communicative and reachable at reasonable hours as determined by the team. Long-term conflicts should be communicated to all relevant parties.

Section 3. Conduct

All members must adhere to the conduct guidelines as outlined in the Columbia University Student Handbook and [Columbia's Gender Based Misconduct Policy](#). It is supplemented by the [Columbia FSAE Conduct and Community Standards Guidelines](#). Members must respect other team members and their work. Hurtful and disrespectful comments about other team members and their work is prohibited. Any harassment of fellow team members including inappropriate comments, slurs, sexist jokes or behavior is prohibited. Any members acting in a way that endangers themselves or others is prohibited. Failure to uphold this standard of conduct will result in review by the EBoard and may result in removal from the club. The EBoard will have avenues where conduct violations can be reported that will be kept confidential from the rest of the club.

Section 4. Membership Review & Removal

Membership on the Columbia FSAE team can be subject to review for reasons including, but not limited to, contributing to a negative workplace environment, repeatedly failing to carry out assigned responsibilities, unlawful activity, or other violations of the Club Constitution or Columbia Student Handbook.

Membership Review

The process of removing an individual from the Columbia FSAE team begins with a majority vote of the EBoard to initiate the membership review process for said individual.

Members of the Administrative Board (President, VP-Operations, VP-Business) will preside over the individual's membership review, together with any two additional EBoard members selected for their relevant experience with said individual. During membership review, complaints against said individual will be confirmed, if possible, and noted. A document of grievances will be prepared laying out the case against the

individual as well as any extenuating circumstances. The document will be presented at an EBoard meeting within two weeks of the initiation of the membership review process.

At the EBoard meeting where the document of grievances is presented, a removal vote will be conducted among EBoard members. A $\frac{3}{4}$ EBoard majority is required to remove a team member, with no more than two EBoard members abstaining (e.g. 11/14 EBoard members vote for removal of said individual).

Membership Removal

Members who are removed from the team through the membership review and removal process detailed above shall be removed from any and all team resources, including but not limited to the following:

- Slack
- Google Calendar
- Google Drive
- GrabCAD
- Mailing list

Article V. Subteams

Section 1. Teams

The current subteam structure is as follows, and may change as the President and Chief Engineers see fit.

Engineering Subteams: Engineering subteams are responsible for handling the mechanical and electrical components of the FSAE competition including designing and manufacturing all components of the car(s). Each engineering subteam is responsible for a different part of the car(s) and is headed by an assistant chief. Collectively, they are under the jurisdiction of the Chief Engineers. Each subteam is expected to be communicative within itself as well as with all the other subteams in order to ensure that every engineer is aware of changes to the car(s).

Dynamics: The Dynamics subteam consists of the suspension, steering, and hubs/uprights systems of both the electric and internal combustion vehicles.

Fluids: The Fluids subteam consists of the engine, intake, and exhaust systems on the combustion vehicle and the drivetrain, cooling, and aerodynamics systems on both vehicles.

Controls: The Controls subteam is responsible for the pedal box, seat, brakes, and driver controls of both vehicles.

High Voltage (HV): The HV Subteam is responsible for the high-voltage circuit of the electric vehicle. It includes the high voltage path, tractive system (inverter and motor), battery pack, software, charging, and accumulator electronics.

Low Voltage (LV): The LV Subteam is responsible for the low-voltage circuit on the EV and IC car as well as data logging and management. It includes the low voltage wiring harness, throttle control, shutdown circuit, and

brake system plausibility device, battery management system, software, display, and sensors.

Business Team:

The Business Team is responsible for the business-oriented FSAE competition events as well as ensuring club operation. The team will weekly meet at the discretion of the VP-Business at a time determined by the whole business team to be most fitting.

Business/Cost: This team is responsible for the Business and Cost presentations for the competition. The Business Team will review FSAE Business presentations of prior years in order to prepare, and manage and create the Business and/or Real Case Scenario Competition presentations for that year. There will be Cost Leads, members of the Business Team, who will be the liaison between the Business Team and their assigned subteams. They will communicate with both the engineering side and the Business side of Columbia University Formula Racing in order to ensure that the Cost Report stays up to date throughout the year, and is ready for Competition.

Sponsorships: The Sponsorships assists the VP-Business with sponsor research, outreach, and management. The VP-Business will work with the President, Engineering Chiefs, and Assistant Chiefs to determine which sponsorships are necessary for the Club to run as smoothly as possible and to produce the best possible car(s). Tasks will include building a Sponsorship Packet to send to potential sponsors, as well as corporate and alumni research.

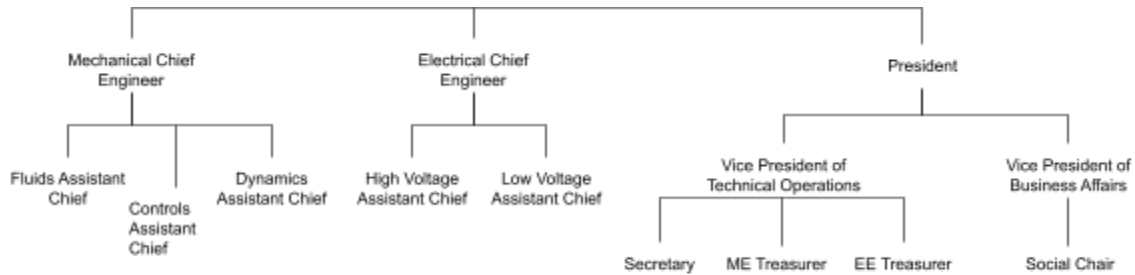
Social Media and Events: All club social media and events planning will be done by the Social Chair under the supervision of the VP-Business and with the assistance of the Business Team. Social events will include Formula 1 race viewings, club bonding activities, and field trips at the discretion of the VP-Business as well as the General Body. Social Media will include the Club's Instagram and LinkedIn accounts in order to promote awareness of the Club and share about events. Other informational events at the discretion of the VP-Business and the Team will be added as necessary.

Software: The Software team is responsible for managing the club's website and file storage system as well as completing engineering software tasks.

Section 2. Duties

All club members will report their progress to their Assistant Chief/Team Lead in weekly subteam meetings. They are expected to stay on task and complete all work by the deadlines designated in the timeline. Project extensions may be granted at the discretion of the Assistant Chief/Team Lead.

Section 3. Chain of Command



Article VI. Meetings

Section 1. General Body Meetings

General Body meetings will occur weekly at a set time that ensures highest attendance. Attendance will be taken at each meeting. The meeting schedule will be determined at the start of the fall semester and will continue until the end of the spring semester. General Body meetings will include educational sessions, updates on car progress, and system design presentations. Club deadlines will also be emphasized and discussed. There will be a 10-15 minute townhall at the end of every other General Body meeting where members may ask questions or voice their concerns to the EBoard.

Section 2. EBoard Meetings

There will be weekly meetings for EBoard members to go over administrative work, competition deadlines, assignment of tasks, engineering progress, and any general issues for the team. All EBoard members are expected to attend unless excused.

Section 3. Additional Meetings

Each Assistant Chief/Team Lead will hold weekly meetings. Attendance will be taken at each meeting. Each Assistant Chief/Team Lead is expected to find a meeting time that accommodates as many of their members' schedules as possible. All members who wish to remain in good standing are expected to attend, unless excused. Issues with attendance will be brought to the appropriate Assistant Chief/Team Lead and then to the Chiefs and President. Additional meetings and work sessions may be held at the discretion of the relevant project leads.

Article VII. Finances and Sources of Funding

Section 1. Mechanical Engineering Funding

The Mechanical Engineering Treasurer will oversee funding and purchases with the Mechanical Engineering Department. In order to secure Mechanical Engineering and Electrical Engineering Funding, the team must submit an annual proposal outlining expected costs through the season in addition to general club organization and management. All purchases must be made via Quartzy with approval from the ME team advisor.

Section 2. Electrical Engineering Funding

The Electrical Engineering Treasurer will oversee funding and purchases with the Electrical Engineering Department. In order to secure Mechanical Engineering and Electrical Engineering Funding, the team must submit an annual proposal outlining expected costs through the season in addition to general club organization and management. All purchases must be made via Quartzy with approval from the EE team advisor.

Section 3. Activities Board at Columbia (ABC)

As CUFR is a recognized Columbia Student Club, ABC provides annual allocations. All purchases require filling out a longer form with multiple steps of approval. This avenue requires more time than directly through a department, but should still be utilized. The Treasures and the President shall oversee ABC funding. Cash donations shall be tracked as Revenue and be held by ABC.

Section 4. Sponsorships

Sponsorships will be managed by the VP-Business and Business team. Sponsorships may consist of cash donations, tools/supplies, or access to facilities, manufacturing, or equipment beyond what is available at Columbia.

Article VIII. Amendments

Section 1. Amendments

Amendments to the Club Constitution may be proposed by any member of the EBoard and must be ratified by a majority vote from the EBoard and a $\frac{2}{3}$ vote from the general body, either in an in person vote, online, or through Slack depending on the year and how the EBoard sees fit.

Article IX. Ratification

Section 1. Ratification

This Constitution shall be established by a vote of $\frac{3}{4}$ majority of the membership in person vote, online, or through Slack depending on the year and how the EBoard sees fit.