

## APPENDIX C DESIGN TEAM CHARTERS

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### *Queen's Biofuels Reaction Engineering Team*

#### **Article I: Mission/Purpose**

1. The Biofuels Reaction Engineering Team's objective is to investigate, design and operate biochemical processes related to alternative fuels and evaluating them on criteria including sustainability and feasibility.
2. The mission is to learn about the various production methods of biofuels through design, construction, collective collaboration and multidisciplinary teamwork.

#### **Article II: Membership**

1. Members of the team may be from any faculty or field of study provided they are either a current student or faculty member.
2. Members wishing to work in the lab must have WHIMS certification and approval by the safety officer of the executive and of the building staff.

#### **Article III: Governance**

1. The governing body of the Biofuels Reaction Engineering Team is to consist of the executive and at least one Faculty Advisor.
2. The executive is made up of student members from Queen's University who are in Engineering, Chemistry or Biochemistry, as an understanding of the chemistry or processes behind the production of biofuels should be standard within the executive.
3. The Faculty Advisor should be a professor who has experience in bioreactors or chemical processing.
4. The executive members will be hired to positions including but not limited to the following:

- a. Processing Chief: The Processing Chief is required to lead the design and construction meetings of the team. They will decide what materials need to be purchased and direct the construction sessions.
- b. Treasurer: The Treasurer is required to produce and update balance sheets and budgets as well as collect and manage the funds that the team receives.
- c. Safety Officer: The safety officer is required to review and approve, with the help of the Faculty Advisor, all designs to ensure that the safety of all present is protected. The executive as a whole is responsible for make sure safety documents are comprehensive and current.
- d. Marketing: Advertises the team through various means. Also is responsible for finding new sources of funding for the team and is required to be present at all fundraising events.
- e. Public Relations: Acts as a liaison between the team and the Queen's community. The public relations executive is responsible for maintaining the team website and various social groups.
- f. Captain: It is the responsibility of the Captain to arrange and book all meeting places and times. The Captain is to support the other executives in their jobs and ensure that the biofuels reaction team's yearly objectives fall within the mission statement outlined in Article I. The Captain also acts as a point of contact to external bodies including the Engineering Society.

#### **Article IV: Impeachment**

1. Impeachment of an executive member is warranted by the following: Duties and Responsibilities are not preformed adequately, theft of equipment or supplies, inappropriate behaviour such as intentionally sabotaging the process or apparatus. Continued lack of attendance at executive council meetings without a reasonable excuse may also result in impeachment
2. Impeachment requires a simple majority vote by the executive.

#### **Article V: Finances**

1. Banking is conducted by the Treasurer.
2. The bank that will be used for the team's account will be TD Canada Trust.
3. Each cheque must have the signature of the treasurer and one other executive member, chosen at the discretion of the Captain.
4. The Treasurer, if on leave for extended periods of time may extend his or her ability to sign checks to any member he or she deems responsible.
5. All funds are to be accumulated through sponsorship, internal fundraising and grants from EngSoc, the Faculty of Engineering and Applied Science and the AMS.

#### **Article VI: Membership Fees**

1. There are no paid positions within the team and no membership fees.

#### **Article VII: Summary for Promotional Purposes**

1. The Biofuels Reaction Engineering Team provides insight to members of the Queen's community into the biofuels industry by investigating, designing, constructing and operating biochemical processes related to alternative fuels. The team members develop knowledge of the biofuels industry, chemical engineering laboratory skills and team work.

### ***Queens' Space Elevator Team***

#### **Article I: Objectives & Mission Statement**

1. The objective of the Queen's Space Elevator Team is to have an operating space elevator for the 2007 Power Beaming Challenge as per the guidelines provided by the Spaceward Foundation.
2. Long term goals include reentry in the Challenge in future years and possible entry into a separate tether creation challenge.
3. This team will exist to provide Queen's students with experience solving real-world engineering problems in a competitive team environment.

#### **Article II: Conditions of Membership**

1. Any student of the Queen's Engineering, Commerce, or Arts and Science program is welcome to join QSET.
2. The experience of upper year students is desired; however, QSET is also a facet for students without prior knowledge in any technical fields.

#### **Article III: Composition of Governing Body**

1. The Queen's Space Elevator Team will consist of both regular and executive members, where a regular member is defined as one that is not an executive.
2. Executive members will be chosen based on three conditions: experience, nomination, and popular vote.
  - a. With the exception of QSET's first year of operation, all executive members must have at least one year's experience with QSET.
  - b. For members to be elected for executive positions, they must be nominated by two other QSET members.
  - c. Finally, executive positions will go to nominees who hold the majority vote (50%).
  - d. All active QSET members of the previous year may vote.
3. Elections will take place following the annual Elevator 2010 Space Elevator Games.
4. All executive positions have a one year term.

**Article IV: Possible executive positions of QSET and their respective responsibilities:**

**1. President**

- a. Set milestones
- b. Keep the team on schedule and on budget
- c. Keep the team aware of both short and long-term goals
- d. Be responsible for ensuring the team has the necessary resources
- e. Set and chair meetings with the executive regularly
- f. Be QSET's representative to the EngSoc, Queen's University, The Spaceward Foundation, and sponsors
- g. Assist VP
- h. Ensure QSET members are motivated and have a positive environment
- i. Mediate conflicts
- j. Recruitment
- k. Coordinate events

**2. Vice-President Operations**

**l. Logistics Coordinator**

- m. Manage day to day operations of team
- n. Communications between sub-teams, governing body and regular members
- o. Manage materials and inventory
- p. Regularly communicate progress and problems with the president
- q. Periodically assess team progress, the outlook of members, and how each member views his or her contribution.

**3. Vice-President Design**

**r. 3D Modeling and mechanical design**

- s. Ensure subsystem team's designs are on schedule
- t. Ensure physical design compliance with competition rules
- u. Mediate between subsystem teams when objectives merge

**4. Vice-President Finance**

**v. Budgeting and management of funds**

**w. QSET's representatives**

- x. Acquiring team sponsorship and funding in conjunction with VP Sponsorship

**5. Vice-President Sponsorship**

- y. Principally focused on attaining a high level of sponsorship
- z. Organizing the sponsors reception and thank-you event

### **Article V: Provisions for Impeachment**

1. Should there be any reason to impeach a member (executive or non-executive), a vote of all executive members will be held.
2. If the vote is found to be in majority (decided by a minimum of 50%), said member will be forced to resign from their position and a new member will be elected for the remainder of their term.

### **Article VI: Banking**

1. Banking for QSET will be done externally by the VP Operations.
2. A bank has yet to be selected.

### **Article VII: Fees & Paid Positions**

1. At this point, the team has elected to not create a student fee for this club. This may change as QSET growth progresses.

### **Article VIII: Summary for Promotional Purposes**

This year, the Queen's Space Elevator Team will enter in The Spaceward Foundation's annual Space Elevator Games. This team will compete against experienced professionals and top engineering schools in the annual Power Beaming challenge, designing and building a wirelessly powered elevator with the ability to climb a paper-thin carbon fiber tether. To win this competition and the five-hundred thousand dollar grand prize, the Queen's Space Elevator Team must combine cutting-edge technology with superior problem solving skills and technical knowledge

## ***Queen's Concrete Canoe Team***

### **Article I: Objectives and Mission Statement**

1. The Concrete Canoe Team is a student run club that designs and builds a canoe made of concrete and competes against other Universities nation wide.
2. Our objectives are to provide a learning environment for students while also providing a fun activity that promotes leadership, teamwork and project management.

### **Article II: Membership**

1. While the team is mostly comprised of civil engineering students, the club is open to anyone who expresses interest in joining.

### **Article III: Team Structure**

1. The governing structure of the team is subject to change, but as it stands right now consists of:
  - a. Team Captain – handles all administrative duties and runs all team functions
  - b. Head(s) of Construction – are in charge of all construction duties

- c. Concrete Heads – are in charge of material acquisition and design of the concrete mixes
- d. Mold Heads – design and build the mold for pouring of the canoe
- e. Head of Design – designs the boat and performs computer analysis of strength
- f. Head of Technical Report – compiles the technical report
- g. Head of Oral Presentation – handles all responsibilities for the oral presentation
- h. Fundraising – responsible for acquiring external sponsorship and internal fundraising

**Article IV: Impeachment and Non-confidence**

1. If problems arise with one of the executive members, then a vote will take place among the remaining executive members and majority rules.
2. This will stand for votes of non-confidence and the possible need for impeachment.
3. If impeachment does occur for any reason, then it will be the executive's decision whether they would like to replace the impeached member with a new member or not.

**Article V: Banking Information**

1. The bank account for Concrete Canoe is currently held by TD Canada Trust.
2. All of the money is accumulated by sponsorship, internal fundraising and grants from EngSoc, the dean, the faculty and the AMS.

**Article VI: Summary**

The Concrete Canoe Team provides an excellent opportunity to have a great time while also learning life skills. Team participation promotes teamwork, leadership and project management. It is a chance to take technical skills learned in the classroom and apply them in a real world project.

***Queen's Concrete Toboggan Team***

**Article I: Objectives and Mission Statement**

1. The Queen's Concrete Toboggan Team is a team where students can apply the technical skills learned in the classroom to a design project.
2. Students also have the opportunity to practice and develop a variety of other skills, such as oral and written communication, fundraising, budgeting, and project management.

**Article II: Conditions of Membership**

1. Any student at the University can join the Concrete Toboggan Team
  2. Typically only second and third year civil engineering students are actively recruited.

### **Article III: Composition of Governing Body**

1. Any member of the team can hold an executive position.
2. Typically, members returning for their second year on the team are given preference.

### **Article IV: Provisions for Impeachment**

1. Should there be any reason to impeach a member (executive or non-executive), a vote of all executive members will be held.

### **Article V: Banking**

1. The Concrete Toboggan Team does not do any banking through the Engineering Society.

### **Article VI: Fees or Paid Positions**

1. There are no paid positions.

### **Article VII: Summary for Promotional Purposes**

Each year, the Queen's Concrete Toboggan Team designs, builds, and races a toboggan made primarily of concrete. This year, over 400 students from universities across Canada will travel to Montreal, Quebec to compete in the Great Northern Concrete Toboggan Race from February 1<sup>st</sup> to 5<sup>th</sup>, 2006.

## ***Queen's Formula SAE Team***

### **Article I: Objective and mission statement**

1. The Queen's Formula SAE Team exists for Queen's students to conceive, design, fabricate, and compete with small formula-style racing cars.
2. The restrictions on the car frame and engine are limited so that the knowledge, creativity, and imagination of the students are challenged.
3. The cars are built with a team effort over a period of about one year and are taken to the annual competition for judging and comparison with approximately 140 other vehicles from colleges and universities throughout the world.
4. The end result is a great experience for young engineers in a meaningful engineering project as well as the opportunity of working in a dedicated team effort

### **Article II: The team**

1. exemplifies the integrated learning model for engineering education by being a multidisciplinary team made up of all engineering disciplines, commerce, arts, and science students
2. Capitalizes on all education and public relations opportunities, in order to remain a visible presence in the community and to promote the University and particularly Queen's Engineering.

3. Team members must effectively find and utilize all necessary resources, be it people, monetary, or materials, in order to build a successful vehicle.
4. The team operates entirely under the supervision of the 'Faculty Advisor', a volunteer liaison between the faculty and the team.
5. The current Faculty Advisor is Dr. Brian Surgenor, in the Mechanical Engineering Department.

**Article III: Organization and internal management structure of the team**

1. Is determined by the student members.
2. Typically a student manager has been appointed annually, by the agreement of the team.
3. In the past, when it has been judged to be in the team's interest, there have been co-managers.

**Article IV: Financial management**

1. Is accomplished by the student members of the team, under the supervision of the Faculty Advisor.
2. The team operates using a financial account provided by the Department of Mechanical Engineering.
3. Responsibility for sponsorship and fundraising lies with the team members, and is an integral component of the design challenge.

**Article V: Work Space**

1. The primary work space and machine shop support for the team is provided by the Department of Mechanical Engineering
2. Shared with the Mini-Baja SAE team in McLaughlin Hall.
3. The Formula SAE team would benefit immensely from ILC shared space, as the McLaughlin Hall workspace is not sufficiently sanitary for composites fabrication.
4. Collaboration between design teams would be improved, such as the sharing of curing ovens, which are currently on loan to the Solar team from Formula.

**Article VI: Blurb:**

The Queen's Formula SAE Team designs and builds a small Formula-style race car, to compete against hundreds of other university teams from around the world at a large annual competition in Michigan in May. The car is designed and built entirely by students, and is an excellent opportunity to learn skills and knowledge beyond what is taught in classes. All students are welcome, and anyone who contributes to the team has the chance to drive the car. It is one of the most exciting, educational, and just plain fun design teams at Queen's.



## ***Queens University Autonomous Robotics Team***

### **Article I: Mission Statement**

1. Our mission is to provide undergraduate students with the opportunity to design and build autonomous robots while gaining invaluable hands-on experience.
2. Students are encouraged to take initiative and develop their own projects.
3. As a relatively young team - started in April of 2002, the Queen's University Autonomous Robotics Team was founded in hopes of obtaining the following goals:
  - a. Gain hands on experience with electrical, mechanical, and software components.
  - b. Learn to solve a real-world engineering problems.
  - c. Develop effective teamwork skills.
4. An underlying intent for the team is to promote ways in which technology can positively affect our day to day lives, and the lives of people around the world.
5. From medical applications, to space exploration, to replacing hazardous jobs in the workforce, the application of robotics can make positive changes to the world around us.

### **Article II: Conditions of Membership**

1. QUART is only available to Queen's students in Engineering and Applied Science or unless additional specialty experience is required. Such as:
  - a. AI programming (Computer Science) or marketing (Commerce) where additional Non-Engineering and Applied Science students can participate and become a member.

### **Article III: Composition of the Governing Body**

1. The team will have one project manager for the entire school year.
2. The project manager will manage the team as he or she deems fit, in order to accomplish the team's goals for the year.
3. The project manager can assign the title of manager to willing team members with at least one term of experience with the team.
4. New project managers will be determined every April with an election process. Votes will be taken with the members who attend the election meeting.

### **Article IV: Votes of Non-Confidence**

1. If at any time, the majority of the team deems the project manager to be unsuited for the position.
2. The team may hold an election to replace the current project manager, more than 80% of the team must vote.

### **Article V: Adequate Banking and Account Information**

1. The project manager will be accountable for all finances for the team, unless otherwise delegated to a team finance manager.

**Article VI: Fees or Paid Positions**

1. There are no paid positions on the team at this time.

**Article VII: Team Summary**

The Queens University Autonomous Robotics Team (QUART) is committed to providing a positive learning experience to all Engineering and Applied Science students interested. The team is currently focused on producing two robots to compete in the Trinity Firefighting Robotics Competition in April of 2006. In this competition, a robot must autonomously (without human control) navigate a simulated house - complete with 'corridors' and 'rooms', and extinguish multiples candles and identify the location of a trapped 'baby'. The candles and simulated baby are placed randomly in 'rooms' and the robot must complete its task autonomously. The Trinity Firefighting Robotics Competition held in Hartford Connecticut is the largest public robotics competition in the world. Last year Queens tied for first place in the expert division.

***Mostly Autonomous Sailboat Team (MAST)***

**Article I: Objectives**

1. The team goal is to design and build a 2m long autonomous sailboat to race against other university and college teams.
2. Depending on the winner of the previous event, the team may also be responsible for hosting the competition.
3. During this process we also want to give students the opportunity to augment their classroom learning by:
  - a. Participating in a hands-on project
  - b. Taking on roles which require responsibility and leadership
  - c. Familiarizing themselves with construction methods and tools
  - d. Finding solutions to complex, multidisciplinary challenges

**Article II: Conditions of Membership**

1. Membership will be granted to any interested student.
2. The primary target will be engineering students in Mechanical, Electrical, and Computing disciplines, but membership may extend into other disciplines, faculties, and into the school of graduate and professional studies.
3. We allow this wide range of students in order to encourage working across disciplines, and to bring in expertise from other areas.

### **Article III: Team Structure**

1. The team is composed of managers, team leaders, and members.
2. Two co-managers are recommended, but not required for formation of the team. Managers will be selected at the end of the project each year. Selection will be on a voluntary basis but if more than two people are interested, a vote will be held by the remainder of the team.
3. The team leaders oversee sub-groups on the team and manage a small group of students focused on a particular aspect of the project.
4. These positions are also voluntary, and the number of sub-groups can be adjusted to a certain extent in order to create the correct number of positions.
5. The remainder of the team is composed of student members.
  - a. Students may be involved with multiple subgroups if they wish.
6. In the event of non-confidence of a manager or group leader, the remainder of the team may vote and choose to either change the status of the student to a member, or to deny membership to the team.
  - b. This may only be done after appropriate steps have been taken to resolve the issue in a less drastic manner.

### **Article IV: Financial Information**

1. All team banking is done through the Engineering Society under the MAST name.
2. Expenses are covered by students until reimbursed by the team unless the expense is significant enough to merit request of a cheque from the team.
3. All team members participate on a volunteer basis and are not paid compensation for their time.
4. The team may provide accommodation, food, and/or flights as required for events, but this is not guaranteed, and students may be required to provide their own funding for such expenses.

### **Article V: Team Summary (for publication purposes)**

The Mostly Autonomous Sailboat Team (MAST) designs and builds 2m long sailboats which can sail themselves using onboard computer control and sensors. The boats are developed for 'SailBot', a competition which Queen's founded in co-operation with the University of British Columbia. SailBot 2006 will be held in Kingston in May.

## ***Queens' Space Engineering Team***

### **Article VI: Objectives & Mission Statement**

1. The objective of the Queen's Space Engineering Team is to compete in competitions that challenge its members in terms of creativity and innovation relating to the frontiers of space.
2. Long term goals include continued participation in NASA's Lunabotics Competition, the Annual CanSat Competition, the Canadian Satellite Design Challenge, and more depending on QSET's growth.
3. This team will exist to provide Queen's students with experience solving real-world engineering problems in a competitive team environment.

**Article VII: Conditions of Membership**

1. Any part time or full time student enrolled at Queen's University is welcome to join QSET.
2. The experience of upper year students is desired; however, QSET is also a facet for students without prior knowledge in any technical fields.

**Article VIII: Composition of Governing Body**

1. The Queen's Space Engineering Team will consist of both regular and executive members, where a regular member is defined as one that is not an executive.
2. The Captain will be chosen based on experience, nomination and popular vote. Executive members will be chosen based experience.
  - a. With the exception of QSET's first year of operation, all executive members overseeing competitions must have at least one year's experience with QSET.
  - b. For members to be elected as Captain, they must be nominated by two other QSET members.
  - c. Finally, the position of Captain will go to the nominee who holds the majority vote (50%).
  - d. All active QSET members of the previous year may vote.
3. Elections will take place in March of that academic year.
4. All executive positions have a one year term.

**Article IX: Possible executive positions of QSET and their respective responsibilities:**

1. Captain
  - a. Set milestones
  - b. Keep the team on schedule and on budget
  - c. Keep the team aware of both short and long-term goals
  - d. Be responsible for ensuring the team has the necessary resources
  - e. Set and chair meetings with the executive weekly

- f. Be QSET's representative to the Engineering Society, Queen's University, the competition hosts, and sponsors
  - g. Ensure QSET members are motivated and work in a positive/inclusive environment
  - h. Mediate conflicts
2. Director of Operations
- i. Keep the team on schedule and motivated
  - j. Keep the team aware of both short and long-term goals
  - k. Manage materials and inventory
  - l. Regularly communicate progress and problems with the Captain
  - m. Periodically assess team progress, the outlook of members, and how each member views his or her contribution
3. Technology Officer
- n. Manage each competitions respective sub team heads and organize weekly meetings with them
  - o. Ensure sub team's designs are on schedule
  - p. Ensure physical design compliance with competition rules for each respective competition
  - q. Mediate between sub teams when objectives merge
4. Information Technology Officer(s)
- r. Maintain the QSET website ([www.qset.ca](http://www.qset.ca))
  - s. Maintain the QSET wiki
5. Public Relations Officer
- t. Manage QSET's Twitter and Facebook accounts
  - u. Create the monthly updates which be sent to students via social media and to our sponsors
  - v. Responsible for recruitment
6. Sponsorship Officer(s)
- w. Attain sponsorship for QSET by creating a sponsorship package and sending it to potential sponsors
  - x. Maintain a tracking system to track amounts received
7. QSET Conference Co-Chairs
- y. Manage a committee and organize weekly meetings for a conference that will occur in the fall
  - z. Delegate tasks to each committee member depending on their respective position

aa. Mediate conflicts within the committee and seek help from the Captain if necessary

**Article X: Provisions for Impeachment**

1. Should there be any reason to impeach a member (executive or non-executive), a vote of all executive members will be held.
2. If the vote is found to be in majority (decided by a minimum of 50%), said member will be forced to resign from their position and a new member will be elected for the remainder of their term.

**Article XI: Banking**

1. Banking for QSET will be done externally by the Engineering Society and finances will be reviewed by the Captain.

**Article XII: Fees & Paid Positions**

1. At this point, the team has elected to not create a student fee for this club. This may change as QSET growth progresses.

**Article XIII: Summary for Promotional Purposes**

This year, the Queen's Space Engineering Team is competing in NASA's Lunabotics Competition. This involves designing and constructing a lunar rover which will compete against those created by schools across North America. We intend on competing in this annual competition in the future. Next year, we would plan on entering the Annual CanSat competition which involves launching an autonomous CanSat with a deployable lander that contains one large hen egg. The first QSET Conference is going to occur next all and will cover themes including the frontiers of space pertaining to technology. We also intend on competing in the Canadian Satellite Design Challenge in the future.