

# **QEC/CQI Senior Design Post-Competition Report**

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## **How has this experience enhanced your engineering skills/knowledge?**

This experience has enhanced our engineering skills by forcing us to design a complex system to accomplish a difficult task using limited time and resources. This is often the case in industry where time and money are limited for a given project and one must think outside the box in order to successfully deliver a solution that will meet specifications regardless of said constraints. The CQI senior design challenge is perhaps an exaggeration of how time and money is constrained in industry since it involved working overnight for 8 consecutive hours with popsicle sticks as the principle building material, but the lesson is learnt by all participants regardless. Observing how our team as well as other teams from other schools were able to all use the same resources yet build different designs was an eye opener and also taught us how there are many different ways to solve an engineering problem.

It showed us how important it is to be able to think on the spot. During the final hours of our build session there was a lot of trouble-shooting. There were small problems that started to arise when we started to test, these issues had to be resolved on the spot and the solutions had to be quick, simple, easy and effective. This help us improve our time-management and problem solving skills simultaneously.

Our technical presentation skills were put to the test. We had to present our robot to a panel of judges from industry and academics. We rehearsed our presentation until it was spot on. We had to deliver a quality presentation with strict guidelines. It had to be straight to the point and especially no nonsense. We were awarded points based on our presentation therefore it had to be perfect. Our communication skills were enhanced after this.

## **What are the lessons learned and how can you improve upon these lessons?**

We learned that Murphy's Law is very valid. What we are describing here are the external factors which we have no control over that influence the outcome of the results. This cannot be avoided and must be dealt with by careful planning and effective trouble-shooting.

We learned that without testing a complex system such as a robot, we can in no way be certain of its success. Testing and making effective use of available resources is the way to go.

We learned the importance of good time management, and time estimation skills. In situations like this where time is extremely constrained, creating a realistic schedule, accurately estimating which tasks are feasible within that schedule, and then sticking to that schedule as faithfully as possible is critical.

Improving upon these lessons would require a post-mortem meeting with a presentation outlining all of the different competitions, the results, and lessons learnt from each team. This would allow senior design to learn what the junior design team learned during their competition for example. Additionally, having a collection of last year's CQI reports written by the participants would be a useful way to have knowledge transferred from year to year.

## **What does this competition mean to you?**

**Benjamin:** A test. This competition tests the limits of a soon to become engineer. You have to work under pressure in difficult conditions and to deal with a limited amount of time and materials. You need to have a good plan, to work hard to the last minute, to solve problems quickly and efficiently, to test

and iterate. Finally, you may need to accept the defeat and take home a will to improve on yourself for the next time or you may win the competition and realize that you were still so far from the perfection and that you have a lot to improve on as a team and as a professional. Next to that, it is a great opportunity to meet your future colleagues and friends and to develop this feeling of fraternity that exists among engineers.

**Charles:** This competition is an opportunity to put my entire self to the test. This competition tests all of one's abilities. It does not require an entire semester or school year; one long weekend is perfect for me at this stage in my degree. Being a regular participant in engineering extracurricular activities is important to me because of the sense of belonging it gives me; combine this with success and there is no better feeling.

**Gordon:** To me this competition was a chance to apply myself to a new and interesting challenge and represent Concordia to the best of my abilities. It was a chance to apply the skills I have learned in classes and in other competitions, as well as to gain some new skills. Additionally it was a chance to form and strengthen bonds with other Concordia students, as well as with my future colleagues from engineering schools across the province.

**Michael:** Having been given the opportunity to represent Concordia at this provincial level competition means a great deal to me. Being able to meet and interact with my counterparts from various schools around Quebec gives me an insight into the colleagues I will one day work with in the engineering field. This competition was a great bonding experience for all involved and strengthens my affinity for Concordia's Engineering program and gives me great pride in obtaining my diploma from this institution.

**We would like the ECA to improve for next year on the following:**

- Make sure to organize Concordia's delegation in the identical manner that Kim did so this year. Everything was done in a timely manner which made for a stress-free delegation.
- The ECA should reimburse the entire amount paid for by the delegates. We are sacrificing our time and energy to represent the University. Reimbursement is common practice.
- Please bring more awareness about the competition to the Faculty. Not all students keep up to date with the ECA's events. Make all of ENCS staff aware of this event. They interact with the students just as much as the ECA does. Get ENCS to send out pre-comp emails to the students. The purpose of this is to put more momentum behind Concordia's delegation.
- Add more variety to the pre-comp and subsequent training practices. Having an additional practice competition was really invaluable, however it would have been better if the challenge used for the practice had less common elements with the pre-comp.
- Selecting the teams earlier in the fall semester and doing more post-selection practice competitions would definitely help to improve the team's performance, although of course this would be a significant increase in the workload for VP Sports and Comp.
- Better advertisement of the pre-competitions so that more students try to get involved. Looking at other schools, they have many applicants for each team, giving them better chances of obtaining a competitive overall delegation. Having more participants would force Concordia students to work harder and improving their skills. Using Senior Design as an example, only one team presented itself for the qualifications and hence were almost guaranteed a spot on the delegation.

- Improving Concordia's competitive uniform would be a major step towards moving Concordia's reputation away from the clowns who love to party. Other schools have intimidating jumpsuits, color coded suit and ties, and we have kilts and sombreros. I have no problem showing off the fact that I don't take myself too seriously but being a representative of Concordia, I cringe every time I am asked to show up to a serious competition wearing a silly costume.