

2/20/2010

SF-1

Personal Essay

Design has been an amazing experience for me. We were able to spend the first trimester participating in some familiar and some preparatory projects. The familiar projects were a nice way to get to know the class, renew friendships, and align the groups for the rest of the year. The preparatory projects were a great way to introduce us to new things and give us some ideas for our Design Projects.

The first trimester was largely taken up by a project that was new to us: the Boe-Bot project. This was a project wherein we worked in teams of two to build and program circuits on small robots that we constructed from a kit provided by the Endeavour Academy. The Boe-Bot consisted of large circuit boards that were mounted onto the top of the robot, which we put together. The project flowed on through several chapters in an online instruction manual that described not only how to do the project, but why something worked the way it did and how to program the robot to do what it was supposed to. My group did pretty well, until we got toward the end of the project. About two-thirds of the way into the project, my partner and I started to run into some technical problems that even our resident techie couldn't explain. We ruled out a human interface error after our best programmers and electricians tried solution after solution without success. But we hung on until the very end, and we even managed to make the robot work well enough such that we could compete in the final competitions.

This project was a valuable experience because it taught us the value of teamwork and punctuality. It gave us the opportunity to work under pressure and experience the communication and dedication that it takes to see a project through, even when it doesn't turn out quite right. Like our Boe-Bot, there are experiments that don't turn out the way they were supposed to, but they are successes all the same because their creators tried and tried again until they got it right—or pretty close, anyway.

The second trimester began with the now-familiar Hot Air Balloon project, with a new twist. As usual, we were expected to build a fully-functional, flight-worthy hot air balloon out of tissue paper and glue. The twists, however, gave the old project a fun and exciting new dimension. Instead of the usual 20-sheet restriction that we had previously adhere to, we were given free reign with the size and surface area of our balloon. Our balloon was a yellow behemoth that we almost couldn't demonstrate it to Mr. Kliewer in the hallway. It consisted of an inverted cone with a cylinder and another cone, this one right-side up. The other change in the routine was the replacement of the usual egg with a miniature video camera. Weeks and weeks went into the planning and creation of our balloon and gondola. There were four of us to a team, and although we did not always get along perfectly, we worked together and got the job done. All of our efforts culminated in the launch of our balloon on a cool, crisp morning in December of 2009. It was the last project that we would finish that calendar year. Our balloon had turned out spectacularly, and we were optimistic about our upcoming flight. Especially because we had been able to complete construction on our balloon right on time, our gondola was set up and ready to go, and our camera was working and broadcasting. Unfortunately, our design was not exactly what we had hoped it to be, but it did well.

The significance of this project was that we got to design our own balloon and then build and test it, which gives the class a real hands-on aspect. This is great because in the workplace, you don't just sit at a desk and look pretty, you have to actually be able to do what you need to do, whether it is to design, build, or test a product, or none of the above. We were also put under high amounts of pressure in order to ensure that the balloon was ready to fly on launch day. We were also required to document the project for a grade, which caused us to manage our time more wisely than we would have.

The final project that our class was able to collaborate on was our Design Projects. These projects ranged between solar powered cars to homemade cracker box amplifiers to LED kits, etc. During these projects, we ran the class the way we would a business. There was a Principal Investigator (PI) for each project who oversaw the planning and execution by the Investigators. I had the good fortune to be the PI for the Solar-Powered RC Car, which I had designed in the preliminary round of brainstorming. After the initial approval, the real work began. My group had to come up with a budget, parts list, and all manner of things that we would need in order to complete this project. This project involved mainly three people, including myself, who worked tirelessly and relentlessly to get this project done on time. We ran into some difficulties when our solar panels did not perform to expectations, and we had less than three weeks to go until the end of the trimester. We managed to pull through that crisis, though, and we were able to successfully mount and connect the solar panel to the car. We have concluded that the panel will be able to either trickle charge the battery or run the car with a small current assist from the battery. Thus, we have deemed our project a success and look forward to presenting it to various groups in the hope of raising awareness about possible alternatives to the fossil fueled cars we have today.

This project was absolutely amazing. We actually got the chance to run our class as a business would run, and design our own projects around what we were interested in. As the PI, I had to be responsible for everyone's time keeping and the records for every aspect of the project. This was a great experience for me, and I would recommend this class for other prospective engineers.