

Mechatronics Final Essay

This last year of engineering has been a blast. The friendships we've all made and how much we've come together is incredible. I feel like I've learned a lot through all the projects we've done and the units we've covered. Even though I was stressed out most of the time for having such little time to complete our stuff, I feel like it's all been worth it.

One of our first projects in this trimester was to build a bridge. We were in groups of two and we had to build it out of paper straws and pipe cleaners. It had to go across a ten inch gap and had to be designed to hold as much weight as possible to win the competition. While we constructed it, we had to keep in mind each direction of force on each straw so we'd know if it would be stronger, or if it would just collapse easier. The pipe cleaners were for the joints, the straws were for the actual "beams". It makes sense to use a lot pipe cleaner between each straw so that the joint would be better reinforced, but we also had to make sure it didn't add to the weight of the bridge and make it crumble with just a little weight. So that was a challenge. Our bridge ended up getting second place, which was pretty cool. This helped us understand how real bridges are built, it made us feel like actual engineers trying to figure out a bridge dilemma, and of course, it helped us with engineering skills of our own.

Another project we did was one that had to with making a hot air balloon.

This was one of the more challenging ones. We were in groups of three or four and had to design and build a hot air balloon that would carry two eggs through the air. It also had to be made out of tissue paper which was really hard because you had to be so careful with it so it wouldn't tear and get any holes or even a huge gash. People came up with a lot of different ideas and designs for their balloons and it was really interesting to watch all of them fly. Our design had the shape of the bottom half of a cone flipped upside down with a hemisphere to top it off. Our goal was to get as much volume as possible to lift it up without having to use too much tissue paper that would've weighed it down. We had to calculate the net upward force as well as many other calculations to figure out how to actually construct our four foot wide, four foot tall balloon. It was crazy, but it did help us understand what it entails to make hot air balloons that actually fly smoothly with the package they're carrying. It was such a stressful project since we were always low on time, but looking back, there were some pretty fun times we had while we were doing it. And I felt so accomplished after it was done too. So overall, I think it was a really good experience, and the first year of intro to engineering definitely helped.

We also put together a robot and got to figure out how it works and present it in front of the class. This really did add to my experience with technology. We got into pairs and each pair got a robot kit to put together. Ours was a line tracer robot. It was supposed to trace a dark line on a light surface, but due to some technical difficulties, it wouldn't work. But we still got to solder all the resistors, LED's, transistors, photo-transistors, IC's, and then we got to put together the gear system,

we screwed on the motors, put the wires together, everything. We got to see really in depth how a robot was put together, what components it needed and how it ran. Then for our presentation, we had to be totally in tune to how the thing worked, so that challenged us a little bit. There were explanations in the back of the robot manual but you had to really know what the components were and how they all worked as a whole to completely get it. The presentation, as well as all other presentations, helped us with our communication skills when we speak to an audience. So that of course helped us with another life skill.

I believe this year has been totally useful to me. While the projects and the topics we studied were fun, they were also quite challenging. Each accomplishment added to the many benefits of this class. And honestly, it helped me decide that I don't want to be an engineer when I'm older. While I know that the stuff we learned will come in handy someday, I don't think I can handle it everyday. And I'm glad I figured it out now and not later. Mr. Kliewer was an awesome teacher and helped us every step of the way, no matter how difficult it was for us to understand some of the concepts he was teaching. Hopefully this course will help me get into some of the colleges I want to get into and hopefully it will "spice" up my applications as well. In conclusion, it's been a terrific year and I hope all the hard work we've all been through pays off nicely. ☺