Questions 1-4:

1. In the beginning of this semester, I was enabled to do research on campus in the COOL lab with Dr. Hosam Fathy and my research partner, Zach Hahn. This project was of many that is held in the COOL lab and I was working with the idea of harvesting energy using the wind. In other terms, I was working with wind energy and wind energy technology. Our question of whether cross wind flight produces more energy or does stationary flight. So for the past couple of months I’ve been working wind energy and I’ve created a SolidWorks model of a high altitude wind turbine so I thought I might as well create a traditional model which is why I picked this for my project.

2. I used a lot of different features to create the parts of this project. For the base of the project I used extruded to for the entire square base then I added a revolve boss on the top of the square. Then I extrude cut into the revolve. Next part I worked on was the mass and all that was a revolve and then an extrude cut at the top. After that was done, I worked on the upper mass which was the same thing but instead of only an extrude cut at the top, I added an extrude boss at the bottom and had an extrude cut at the top. The next part was the small connector part between the upper mass and the upper body of the turbine. That was just an extrude boss. I worked on the blades next. I created four more planes off the front plane. I created a sketch and extruded it. I made the planes on the opposite side of the extrude and then made a sketch on each plane. The first three planes had similar sketches and the fourth just had a point. My last step in creating the blade was lofting everything together. The next part was the hub which was just a revolve and an extrude cut. I drew a sketch then revolved it and then made an extrude cut and the bottom of the hub. Next step was adding a plane some inches in the hub so I could make a sketch on it to extrude cut it through the body. Next I created a circular pattern to add two more circles that were evenly spaced around the hub. After the hub was the axis that the hub would have to rotate around and that was again another extrude boss. From the axis I made half of the nacelle. This part was one of the harder parts and contains the most features. I created a sketch then another plane and also sketch on that. Next I lofted the two planes together. Next I mirrored the figure and created another plane with sketch on it. I lofted the plane to the figured. Next, I drew a large rectangle on the right plane and extrude cut it so it cut out half of the object. Then I shelled out the object and extrudes some parts of it to hold the main axis. Then I added some material so I cut out a part to hold the connector piece for the upper mast and the upper body of the turbine.

3. The hardest part of this project was creating the other half of the nacelle. I just created a copy and I used the mirror feature to flip it around. I never used this feature before and I learned it from the YouTube video SOLIDWORKS Quick Tip - How to Mirror Parts by GoEngineer.

4. I learned a lot of things from this section of engineering design. Some of it doesn’t really deal with actually SolidWorks. I’ve learned that most times there always more than one way to do something. I feel that I understand more about the constrains that engineers face when building models. Through, CAD program like these we are only limited by our creativity. And I’ve learned more about engineering itself through using this program. As for all the things that I’ve learned that are actually about SolidWorks. I learned how to
how to create different shape without actually drawing the shape. For example, there was no way I could have created the blades on my turbine by drawing it or adding shapes together or cutting up shapes.