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September 16, 2016

EE 494

**Cumulative Reflection**

In my first engineering class here at Iowa State I learned the importance of lifelong learning. When I finished that class I was confused on how it related to engineering and thought it was really a waste of time because I was at a University and obviously already new learning was important. However, after four years at Iowa State I am glad that was my first class here. As an engineer I will constantly be learning about new processes and finding new solutions to problems in the world. If a problem comes a long that I do not know how to solve I can learn from others and through research how to solve the problem even without knowing at the beginning. I am going to be graduating in the spring but I am far from done learning how to impact and change the world around me.

Internships and experience working in the world has reinforced my realization that I will be learning the rest of my life. I have spent two summers learning how companies work to solve problem in the world and I never went to work without learning something new every day. The world is constantly changing and the problems I will be asked to solve will always be different and I will be learning new way to meet those problems. At my internship with MidAmerican Energy I helped design and replace underground electrical cable in residential areas and quickly learned that although the jobs had the same basic steps each one was unique and I had to address and learn from each situation. One of the best ways I learned about new ideas and got help with projects was to collaborate with others.

Throughout my academic career I learned how to effectively work in a group to solve problems given to us. I learned that in every group there are people who are largely devoted to making the group better and working hard and there are those who are hoping the group will make them successful without working. I remember specifically scheduling time to work with a struggling unmotivated teammate on a grid stability analysis project so that we could both contribute to the project and learn together. Another large part of working in a group is learning who you work well with and letting those partnerships grow. I have spent the majority of my last two years here at Iowa State collaborating with a fellow to student to enhance my learning. We are able to work together to more effectively solve problems, teach each other about the subjects we are learning, and apply what we learned about.

Iowa State has taught me how to successful design and implement engineering solutions. I remember in my circuits II class have to design a circuit that essentially was a TV remote and have it transmit and receive a signal. My group had to meet certain design requirements for the project and demonstrate that our circuit was able to fulfill them. In my sustainable engineer class, I learned how society’s perceptions and acceptance of my products should effect my designs. If I find a way to provide water to Africa but it is too complex for the African people to build and maintain themselves then my solution will not last. In Iowa if I want to build a wind farm I need to be able to transmit the power I produce back to the population and if the people who own the land where I want to put up transmission lines will not let me then my clean energy solution no longer works. In the end solving the engineering problem is the easy part, finding a way to implement the solution in society and actually change people is the hard part.

Completing projects at Iowa State required finding outside information to help me learn about possible solutions to the problem. The most effective way I found to learn about new concepts was to find a person who was an expert in the particular field. Talking with graduate students or professors who studied the material I needed to learn about was the most effective way for me to learn. Discussing ideas with people also gives you the added benefit of hearing their opinion that you cannot get from a text. If I did need specific information from a journal or text, I used the Iowa State online library search tools to find articles that applied to my questions.

While in my undergraduate career I got the privilege to lead in multiple student organizations. I am the social chair and a teacher for the Gaffers Guild (glassblowing club) and a Salt company leader. Leadership has taught me how to communicate and organize events for large and small groups of people. As a leader in the Salt company I lead a connection group of five to ten students that meets every week to discuss and learn about the bible. As the social chair for the Gaffer’s Guild I am charge of planning club wide glass production parties to produce pieces for the club to sell.

Iowa state has prepared me for graduation by teaching me how to work in a professional career and to learn away from school. I have discussed engineer ethics with my professors and realize how it will affect my decisions later in my career. As an engineer my designs need to be factually based and tested so they do not cause harm on the people that use them. I am also prepared to learn outside of Iowa State by using the knowledge that I learned here as a base. Once in the work force I am confident that I will be able to learn from my coworkers in an effective way. As a member of IEEE and Tau Bata Pi I feel confident in my abilities to follow their guidelines and be able to research the standards that they set for our industry.

If I were starting my starting undergraduate degree again I would tell myself not to worry so much about a class grade but more about what I am learning in the class, the grade will follow. Secondly, to build a strong community of fellow electrical engineers even earlier in your classes so that you can work and grow with them more in the upcoming four years. Finally, to dream big but realize the complexity of the world and how that will affect your design and implementation of the engineering solutions you come up with.