

Iowa State Cumulative Reflection

Throughout my five years at Iowa State, I have learned many practical technologies and applications of those technologies. However, despite the extremely high value I place on these skills, the most valuable ability I have developed during my time at Iowa State University is the ability to learn. The curriculum at Iowa State places a very high emphasis on critical thinking, which has enabled me to become a life-long learner.

Iowa State courses have effectively prepared me to apply the many engineering concepts and technologies that I have spent years learning to a near-infinite set of practical problems. Through the use of black box design, I am able to quickly and efficiently understand the requirements of a system. In courses like Computer Science 229 (Advanced Coding Practices) I was given high-level specifications that required my understanding of black box design to break the problem down into manageable sub-sections. This is done by defining sub-modules that solve small parts of the original problem. Defining these sub-modules by their inputs and outputs is essential for allowing your design to come together as a cohesive solution to the original problem.

During the last 2 years as an Iowa State student, I have taken many courses with team labs and projects. This has allowed me to be a very effective team member. I have become adept at communicating with team members and organizing team efforts to accomplish tasks on time. With these soft skill-sets developing through repeated practice, I have started to take leadership roles in my team projects during my final few semesters. For example, In my Senior Design course, I gravitated to the role of communicator by initiating contact with our faculty advisor and managing communications between our team and our client. I have successfully maintained weekly contact with our client, allowing for very detailed requirement gathering. This effort will allow our team to design a product that is a very accurate representation of the client's initial vision.

Many problems faced throughout my coursework were complicated enough that I had to be capable of using outside recourses, from classmates to additional research, to complete tasks. Courses such as Computer Science 311 (Algorithms) presented problems that were based upon concepts learned in lecture, but complicated enough to inspire me to spend many additional hours discussing difficult topics with classmates as well as reading additional material at the library. Requiring me to expand my learning experience beyond lecture has prepared me to face even the most challenging design problems in my career.

Outside of the classroom, I was a part of Critical Tinkers for three years and also had the opportunity to be employed by Huffman Engineering as an engineering intern. In particular, I gained a deeper understanding of the importance of critical thinking and life-long learning during my time spent working at Huffman

Engineering. Huffman was primarily an employer of electrical and mechanical engineers, so as a computer engineer, I had the opportunity of designing an automation solution to an internal problem regarding AutoCAD revision control. Since my skill-set was a little different than my co-workers, I had the experience of designing the system from the ground up to meet their requirements. This was the perfect application of the life-long learning skills I have developed at Iowa State university. I used external documentation and on-line recourses to learn about Excel, AutoCAD, and Visual Basic for Applications to design a macro-enabled spreadsheet that managed all of the project revision data.

In these last few semesters, I have taken initiative to spend additional time outside of my regular coursework to combine concepts from different classes for a deeper understanding of computer and software engineering as a whole. Specifically, for my portfolio, I opted to build a website from scratch over using a service such as Weebly. This allowed me to achieve a deeper understanding of server-client communication and how HTML, CSS, Javascript, PHP, and MySQL work together to bring client browsers dynamic web pages.

Overall, I am extremely happy with my years spent at Iowa State University. I truly believe I am a more accomplished individual with well-developed critical thinking and communication skills that I didn't have as a Freshman. If I were to change anything, I would have had a stronger initiative to pursue projects and learning outside of my coursework early on. It wasn't until I developed this initiative during my last two years that I truly started becoming very skilled and efficient at designing solutions to engineering problems.

With my Iowa State education coming to a close, I feel confident in making the following statement: I am prepared to become an influential member of a software development team designing creative solutions for their customers.