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CPRE 4940 — General Education Reflection Assignment

A Reflective Journey: My General Education Experience at Iowa State University

Aside from the slew of technical and professional coursework I have completed at Iowa State, I have had the pleasure to garner credits across several courses of my interest outside of the standard computer engineering curriculum. I enrolled at ISU with several applicable AP course exam credits in subjects varying from statistics to computer science and notably included several history courses. Now this semester, I am taking HDFS 2760 and have taken RUS 3750 as well as a study abroad in Ireland. Despite my diverse range of experiences, I have found a common theme: intellectual development. While my technical coursework has given me the requisite knowledge to solve problems, it has conversely been through my general education that I have had the opportunity to analyze disparate sources, combine information, and synthesize solutions to provide exposure to the social sciences and humanities and raise my awareness and understanding of global, societal, economic, and environmental issues.

As far back as high school, several AP courses introduced me to the key engineering concept of ethics through the lens of history. Reading *The Jungle* by Upton Sinclair in U.S. History (counting as HIST 221 and 222) showed me how weak legislative policy and unethical business practice, in the case of the meat-packing industry herein, harms employees. Or, in U.S. Government and Politics (counting as POL S 111), I learned how the Watergate Scandal unfolded and raised ethical questions of power abuse, which I find now parallels my own responsibility to act with utmost integrity even in the face of opposition or adversity as an engineer. The units on economic policy also refined my understanding of cost–benefit analysis, a contemporary issue today amid faltering global economics, and of resource allocation, both of which drive the development and shape the implementation of new international engineering projects today and matches my own experiences in software engineering internships.

Moving from historical and political context to more contemporary social matters, I am taking HDFS 2760, *Human Sexuality*, as part of the U.S. Cultures and Communities credit. In learning about stereotypes, discrimination, and misunderstandings with respect to topics like sexual and gender orientation, I see a connection with engineering, where designing a robust solution to solve a given problem requires not only fully understanding the problem at hand and

the users affected, but also taking a range of diverse perspectives as input to ensure the final result adequately services everyone's needs. For example, something as simple as designing an effective software user interface should involve consulting individuals from other cultures and walks of life to avoid bias and best solve the social problem at hand without introduced unwanted social discrimination, a problem currently plaguing many aspects of society.

In a similar vein, I took RUS 3750 as part of the International Perspectives requirement, where I learned about how the Soviet Union functioned and how propaganda played an important role in government presentation and opinion. During the Chernobyl disaster, for example, USSR officials tried to hide the accident fearing international repercussions but eventually drafted a clean-up plan. Even this was fraught with hazard and after many years, several botched repairs, and thousands of lives taken or permanently harmed, experts deemed the area too dangerous and unfit for human habitation for at least the next 10,000 years. This alone was a profound case study to dive into and showed me firsthand with original imagery and authentic recounting how shoddy engineering, improper oversight, and rushed deadlines can lead to humanitarian and environmental disaster. This course formally introduced me to the ideas of engineering environmentally sustainably and fault tolerantly, both of which greatly behooved my learning experience in my ethics course (equivalent of CPR E 2320) and through my engineering internship work thus far in thinking about maximizing my software's reliability and minimizing performance and downtime costs to reduce the carbon footprint, a very pertinent issue today as atmospheric carbon levels continue to rise and climate change takes hold worldwide.

In reflecting upon my general education at ISU, I have come to realize the great impact and importance of growth beyond technical coursework. In understanding and learning from historical context in my AP transfer courses, human sexuality in HDFS 2760, and Soviet-era cover-ups in RUS 3750, my background on contemporary societal, ethical, and global issues has considerably improved and now provide me with a rich framework from which to make robust engineering decisions in the future. With a holistic perspective, I am confident in my ability to understand the users and make ethically sound decisions to serve their needs thenceforth. Pairing interconnectedness among people, technology, and the environment and an everlasting commitment to make change for good, engineering calls for global awareness and careful forethought; with my technical prowess and general education in concert, I feel ready to act with mindfulness in the pursuit of thoughtful and responsible solutions to the world's most pressing issues.